

American Fruit Grower

MAY • 1954



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DOW MITICIDE IS EFFECTIVE AGAINST A WIDE VARIETY
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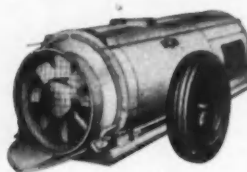
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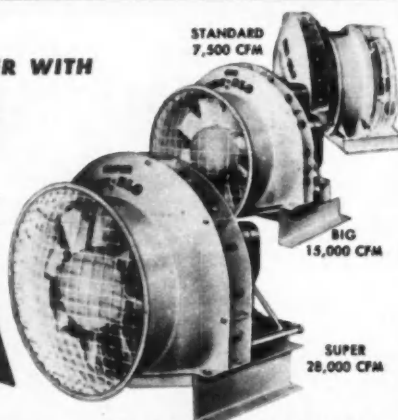
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MAY
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CONTENTS

Our cover photograph this month shows a cluster
of cherries, courtesy J. C. Allen and Son.

What Is Your Rating as an Apple Grower?.... 9	By Wesley P. Jenkins
Tree Nut, Prince of Proteins.....11	By Henry Bailey Stevens
Let's Pay a Visit to Fruit Acres.....12	By Eldon S. Banta
State News.....14	
Fruit Pest Handbook.....14	
Apple Promotion.....20	
The Question Box.....22	
Spiced Jonathans.....23	
How Filler Trees Affect Light Intensity.....25	
A Custom-Made Peach Business.....26	By Charles L. Stratton
Safety in Spraying.....28	
"The Gun Is Always Loaded".....30	
Choosing an Apple Disease Program.....32	
Windfalls.....34	Led by Henry Bailey Stevens
The Phylloxera Menace in Vineyards.....36	By Konstantin Frank
American Pomological Society— Paul H. Shepard.....39	By Guy Trail
News from Your Suppliers.....42	
Enterprising Lad from Louisiana.....43	By Annabel Atkinson Pankey
The Orchard Home.....45	
Editorial Page.....46	

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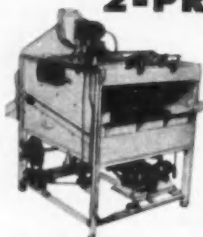
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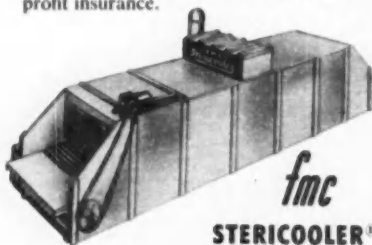
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LAKELAND, FLORIDA

4-6

6

LETTERS TO THE EDITOR

Vending Machines for Apples

Dear Editor:

You will be interested to know that our operator in Massillon, Ohio, placed a machine in the Washington High School which for the first three days sold 2,000 pieces of fruit. This is a very clear indication of what can be done on a national scale if the industry gets organized to help do the job of making fresh fruit as available as candy and soda. Fruitomatic Manufacturing Co., Los Angeles, Calif.

J. C. de Graaf

Variety Wanted

Dear Editor:

Do you know of a grower from whom I could procure seedling trees of the English apple, Cox's Orange Pippin? Woodruff, Wis.

George E. Fisher

Try some of the nursery companies who advertise regularly, especially those who sell dwarf apple trees, since the Cox Orange is a favorite for dwarfing. You may be able to buy a single tree from them, plant it, and have all the scion wood you need. On the other hand, there may be one of our readers who can supply Mr. Fisher. If so, please contact him at Star Route, Woodruff, Wis.—Ed.

Picking Shirt

Dear Editor:

For comparison with the "picking sleeve" recently shown in your magazine, here is a "picking shirt" in which the fruit will neither



bruise nor roll out. It is collapsible as well as extensible. The bag opening has a special zipper, and an instantly adjustable hoop holds the bag open at the top. Inside, a very elastic bowl is attached to the sleeve hold. Fruit squeezes through it and cannot drop. The bag fits half

way around the body and does not bulge too much in front. There is no harness to hurt the shoulders.

Intended for all kinds of fruit, this sleeve-bag-shirt is my invention.
Newcastle, Calif.

A. Laforge

Picking Chute

Dear Editor:

During a tour through apple country between here and Shepardstown, W. Va., recently, showing my long-chute invention, I talked to several interested people.

The development of my invention consists of three stages, all three of which are illustrated here and are self-explanatory. The picker picks



the apple and drops it down the chute into the container.

Practically all the "bugs" are exterminated. The system cannot serve one-bushel boxes because more than a bushel of collapsed chute is in the box when the operator starts up a tall tree. Large boxes and/or portable graders are perfect accessories.

College Park, Ga.

Joseph A. Schanno

Listings Wanted

Dear Editor:

We would be greatly obliged if you would notify your readers that the publishers of *The Fruit Annual* (British-Continental Trade Press Ltd.), the only yearbook and directory of the international fruit trade, will be glad to include, free of charge, all bona fide exporters of fresh, canned, and dried fruit and fruit products in the relevant sections of the directory.

All these firms are invited to write to the American representative of *The Fruit Annual*, J. D. Griffiths, 3606 Parkwood Drive, Greensboro, N. C., who will send them further particulars.

London, England

British-Continental Trade Press Ltd.

Old Variety

Dear Editor:

Could you, or any of your readers, put me in touch with a grower who has a few Geniton apples? I have searched in vain for this good, late-keeping variety and wonder why it is becoming extinct.

Van Buren, Mo.

L. C. Warth

If any of our readers have this variety, I am sure that Mr. Warth would be happy to hear from them.—Ed.

"The Holy Earth"

Dear Editor:

I would like to obtain a copy of *The Holy Earth* by Liberty Hyde Bailey. It seems to me I saw somewhere in your magazine where copies could be secured but have been unable to locate the reference.

Columbia, Mo.

James Russell

Copies may be obtained for 25 cents from Agricultural Missions, Inc., 156 Fifth Ave., New York 10, N. Y.—Ed.

AMERICAN FRUIT GROWER

a new antibiotic fungicide

Actispray

Soluble tablets

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Destroys Cherry Leaf Spot established for periods up to 96 hours!



Easy to use

Add the readily-soluble antibiotic tablets directly to the tank with agitator running.

Economical

One tablet to 100 gallons of water gives a 1 ppm. solution sufficient to treat up to 20-25 trees.

Use Actispray . . .

on both sweet and sour cherry trees. Recommended for a post-harvest spray only on bearing trees, non-bearing trees, nursery stock and transplanted trees one or two years old.

Rapid in action

Has an eradicating effect on fungus within one hour following its application to the diseased leaf. Rains after this one-hour period will not limit the effectiveness of Actispray.

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Extensive tests during the past five seasons by experiment stations in Michigan, New York, Missouri, Wisconsin and Ohio have shown that Actispray is an outstanding fungicide.

Actispray is a product of The Upjohn Company, Kalamazoo, Michigan. For complete information, write to:

Exclusive distributor: **Niagara** Chemical Division
Food Machinery and Chemical Corporation
MIDDLEPORT, NEW YORK

Actispray antibiotic tablets are available in convenient glass tubes, 24 tablets to a package.





**"I go anywhere in my orchard,
anytime and save 60% on fuel!"**

George A. Bacon, Anna, Ill.

"I couldn't get along without the Cat D2 Tractors—I go anywhere in my orchard, anytime. I pull these 500 gallon sprayers on 3/4 gallons of 13.2¢ diesel fuel per hour—saving 60% on my fuel costs"—so reports George Bacon.



Sure, you'll save a lot on your annual fuel bill when you replace your present gasoline tractor with a Cat* Diesel Tractor. That's because you'll burn 12¢ to 15¢ No. 2 furnace oil instead of 20¢ gasoline, and you'll use about 60% as much. So you'll save 60% to 80% on your fuel bill.

But fuel savings are no object when you've a spray to put on the morning after a heavy rain, and your wheel rigs sink in to their axles . . . when a day's delay can cost you a fruit crop. *That's* when you'll really appreciate owning a Cat track-type Tractor! You can pull approximately *twice as much* with a Cat D2 Tractor as you can with a wheel tractor of similar horsepower . . . that's because the D2 has *four times as much* pulling and flotation track area

contacting the ground. This extra pull power will get you through with a full load where wheels cannot. Yet, for all its power, the D2 is far less bulky than most wheel-type orchard tractors . . . less than 5' high by 5' wide.

Let your Caterpillar Dealer bring a Cat D2 Orchard Tractor to your orchard for you to try out. Give it every test . . . compare fuel costs with your present power. Try it out on those jobs you have to contract for . . . clearing trees, leveling land, etc. Figure the extra jobs you'll use it for. Make your next tractor a Caterpillar Orchard Tractor!

Caterpillar Tractor Co., Peoria, Ill., U.S.A.

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I have _____ acres of orchard, and _____ acres of farmland.

My present power is _____

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AMERICAN FRUIT GROWER

WHAT IS YOUR RATING AS AN APPLE GROWER?



Were you to use the yardstick applied to other business enterprises would you be classed as a successful grower?

By WESLEY P. JUDKINS . . . *Virginia Polytechnic Institute*

MOST of us are well aware of the fact that apple consumption in the United States has dropped from about 60 pounds per person in 1910 to about 25 pounds per person at the present time. The consumption of other fruits except citrus has not changed appreciably during this 40-year period. Citrus consumption has increased tremendously to approximately make up for the drop in apples.

Other significant trends are the reduction in the number of apple trees; the increase in production per tree which partly compensates for the decline in tree numbers; and the increase in population in the United States of about two million people per year. These several trends, plus the relatively favorable economic condition of the average consumer, would seem to justify an optimistic outlook for the future of the apple industry.

The situation is not that simple! Apple growers have several critical problems which must be attacked realistically if customers are to receive high quality fruit at a price they are willing to pay.

Most fruit growers have had a number of years of experience in raising apples. The knowledge gained from such experience, plus that which is available from various organizations and professional workers, is adequate to promote a profitable enterprise. The degree to which you use this knowledge and succeed in your business is up to you. The decisions which only you can make control the success or failure of your own farming enterprise and ultimately the fate of the entire apple business.

Since farming in this modern age is rapidly becoming a strictly business proposition, it is logical to expect that we might gain some useful information by examining the records of success and failure in typical retail stores. Dun and Bradstreet, Inc., have made some relatively exhaustive studies of such businesses. Their reports reveal that inefficient management is by far the most important cause of failure.

Speaking specifically, the following four items are most commonly associated with the failure of small businesses: 1) general incompetence, 2) poor management, 3) competition, and 4) inadequate records. The same problems confront the orchardist.

Although fruit growers are involved in an enterprise which is beset by many difficulties, they might be somewhat encouraged to know that other businesses have their problems, too. According to Dun and Bradstreet, only 26 per cent of all of the new businesses established in a typical Illinois town survived their first six years of operation. Their records show that about 50 per cent of all

retail stores fail in any given 10-year period and that over 90 per cent of all small businesses ultimately fail.

Profitable management of a business enterprise involves many factors, such as up-to-date knowledge of the best practices to follow, the keeping of careful records, good judgment, attention to details, and the following of good businesslike procedures. Is it not logical that the application of the same principles to fruit growing would enhance the chance for success? We have been too inclined to think that success in operating a farm was a matter of strenuous physical activity combined with favorable climatic conditions. The real future of fruit growing in the United States rests on the adoption of more efficient business methods, along with continued study of the latest cultural practices.

If we are to make apple growing profitable, we must supply customers with the type of fruit they want. What the consumer really wants is an attractive apple of medium or above-average size, which is free from insect and disease damage, is at a satisfactory stage of maturity for the intended use, and is free of excess bruising. If the buyer finds your apples do not meet these specifications, he will either secure the fruit somewhere else or pay you a low, unprofitable price.

During recent years it has become increasingly more evident that the consumer prefers a bright red apple. Did you ever stop to consider how this deep-seated preference was established?

It would appear that in days gone by, the apple buyer frequently received immature, poor quality green or yellow



apples. Apples which characteristically developed red color were usually placed on the market in a more mature condition. The customer learned to associate red color with high quality. This may not be the exact sequence of events, but the fact remains that the modern consumer prefers attractive red apples.

Red Apples Must Be Ripe

In response to this preference for red color, numerous red strains and sports have been introduced. Such introductions have undoubtedly helped the apple grower deliver a better colored product to the consumer. There is one very serious hazard involved in connection with the growing and marketing of these red sports. Unless caution is exercised to be sure that these red strains are allowed to remain on the tree until an acceptable stage of maturity has been attained, they may be condemned by the customer just as he has condemned green and yellow varieties in the past.

The problem of proper maturity of the red sports of apples is illustrated in a recent advertisement of a prominent nursery. This advertisement stated that its red strain of York "may be harvested two weeks ahead of York Imperial." The double red strain of Delicious offered by this nursery could, so they claimed, "make possible early harvesting and marketing ahead of western apples."

If red strains of apples are to really help the fruit grower make better profits, they must be allowed to develop on the tree to a satisfactory stage of maturity. It is obvious that these red sports are of great importance to the industry. Let us not reduce their importance by harvesting them too early and thus build up buyer resistance on the part of the consuming public.

If apple growers are to secure the greatest profits from their enterprises, it is essential that more attention be

given to the keeping of records. Unless yield data are kept for the different blocks of trees and varieties in the orchard, there is no way of determining accurately which parts of the enterprise are making a profit and which parts are being operated at a loss.

What yield per tree or per acre is needed to insure a profit? This is a difficult question to answer because each orchard presents a different set of problems. An examination of some typical yield and cost figures will serve as guideposts to help you determine whether your operation is above or below average.

The average yield in bushels per tree of the more important apple varieties in Virginia for the 16-year period 1934 to 1949 were as follows: Delicious 2.3, Stayman 2.5, Winesap 3.3, Golden Delicious 4.4, Rome Beauty 5.4, and York 5.4. The average yield of all winter varieties was 3.7 bushels per tree. If we assume that there are 40 mature trees per acre, which is probably too high for many orchards, the Delicious and Stayman trees would average only 100 bushels or less per acre. The per acre yield of Rome and York would be slightly over 200 bushels. The average for all winter varieties would be just under 150 bushels per acre.

Low Acreage Yield

These yields appear relatively low. Average yields are always low because they include the poor as well as the good orchards. However, these do give a definite picture of where the industry is at the present time. Most growers would readily agree that the orchards and blocks of trees which produce below the average of 150 bushels per acre cannot be making a real profit for the owner. Therefore, would not 150 packed bushels per acre be a satisfactory yield to establish as a point below which orchards would be removed? Sam Dillon

cited similar yields for Maryland in a report which he presented in 1951.

Although average yield figures are of interest, they may not reflect the point where losses change to profits. It would seem logical, however, that such average figures for a state or area would be fairly close to the minimum necessary to pay production costs. It seems unlikely that an industry could survive for long if the average grower was operating at a loss.

Yields and Cost of Production

What yields are actually required to pay all production costs in apple growing? These costs include all direct expenses for labor and materials, as well as interest on investment, depreciation on equipment and trees, and must provide a reasonable wage to the owner. In Virginia, Flint Waller has reported that production costs amount to from \$5 to \$6 per tree per year. At 40 trees per acre, that would be \$200 to \$240 per acre. During recent years, apples have brought the grower in the neighborhood of \$2 per bushel or more. Therefore, 150 packed bushels per acre should be a satisfactory minimum yield on the basis of Mr. Waller's cost figures. Most growers will, of course, attempt to produce larger crops to provide a more satisfactory income.

Cost and yield data from other states justify similar conclusions. In New York for example, Scoville has reported a survey of growers in the Hudson Valley for a five-year period in the middle 1940's. An average yield of 180 bushels per acre returned a net profit of 19 cents per bushel above all production costs. In western New York, a similar survey showed that an average yield of 158 bushels gave a net profit of 25 cents per bushel above production costs. The actual yield which is necessary to cover expenses will, of course, vary with the market where the fruit is sold and the variety which is grown.

Many other figures could be quoted, but they would be similar to those given above. It appears that when the orchard enterprise is conducted on an efficient basis, that a yield of about 150 bushels of packed fruit per acre may pay all production costs including interest, depreciation and a modest salary for the owner-operator. The energetic, ambitious operator should insist on yields which are distinctly above this suggested minimum. If real profits are to be made from fruit growing, it is essential that accurate records of costs, yields, and returns be maintained. Such records are necessary if the orchardist is to know which of his block of trees are unprofitable, which varieties must be eliminated, and which practices must be changed. In this age of intense competition and high costs, it is obvious that the apple growing enterprise must be placed on a business-like basis if it is to survive.

THE END

TREE NUT

Prince of Proteins

By HENRY BAILEY STEVENS

It is being sadly neglected as a valuable food by both the grower and the consumer

IF any Rip Van Winkle of the nineteenth century should walk through our markets today, he would be amazed at the variety and quality of the fruits and vegetables offered: citrus, apples, grapes, plums, avocados, lettuce, spinach, celery, etc. The old diet of meat and potatoes has undergone a remarkable change since 1900.

This change is partly due to improved methods of transportation and refrigeration; but it has also been greatly influenced by the newer knowledge of nutrition. Think of what Popeye did for spinach!

Is it not high time for some comparable change now in the consumer's attitude toward nuts? Here is a product which Nature has already packaged wonderfully, encasing it in an individual shell that brings it direct from the tree to the table. It does not have to be refrigerated. It does not even have to be cooked. Best of all, it has a superlative food value.

Look over the tables of food composition of 275 selected foods, published by the USDA Bureau of Human Nutrition and Home Economics. Per 100 grams of edible portion the Nut group shows an average of 661 calories and a content of 19.2 grams protein, 56.7 grams fat, and 18.6 grams carbohydrates. No other group shows such all-around superiority. Fats and oils slightly exceed nuts in calories but can muster up only 2.8 grams protein and 4.1 grams carbohydrates.

The supremacy of nuts among all high-protein foods in respect to food energy is shown by the following:

Number of calories in high-protein foods per 100 grams of edible portion*

Pecans.....	747
Walnuts, English.....	702
Almonds.....	640
Peanuts, roasted.....	600
Fat pork carcass; side.....	534
Dry whole milk.....	496
Fat lamb carcass; side.....	410
Very fat beef—choice prime, Grade AA; carcass.....	406
Cheese, cheddar type.....	393
Whole wheat flour.....	360
Beans, dry seed.....	350
Turkey, medium fat.....	262
Chicken, roasters.....	194
Eggs, whole fresh.....	158
Fish, miscellaneous, medium fat.....	98
Milk, fresh whole.....	69

*Tables of Food Composition, USDA Miscellaneous Publication No. 572, 1945.

"Yes," comments Mr. Quibbler, "but isn't the protein of nuts relatively hard to digest?"

MAY, 1954

No, flatly. The researches of Osborne, Cajori, and others have shown that such protein is of the finest quality and can be as well utilized as the protein of meats if the nuts are crushed or well chewed. Tissier of the Pasteur Institute, in fact, found that animal protein is twice as putrescible as vegetable protein. Nut proteins resemble those of milk so closely that they were long known as vegetable caseins. Furthermore, nut fats are more readily digestible than most animal fats and are far less likely to decompose in the alimentary tract. "Pound for pound, walnuts, almonds, pecans, filberts, *et al.*" rate well with leading flesh foods in protein content and their quality is superior; almonds and walnuts exceed whole milk in protein content four to one. (This sentence is the corrected version, following the quotation marks, of a sentence used in my article "Next Please—the Nuts" in the April, 1952, issue.)

Many nuts are also valuable sources of iron and calcium. The almond and filbert supply a larger proportion of iron than does an equal amount of beef-steak and several times the amount of food lime supplied by meats of any sort. Tree nuts are so well adapted to human food as to foster the intimation that they are the most natural protein of the primate family.

As to the palatability of the tree-nuts, one has only to watch children crack and eat them raw to realize their primary appeal.

In the face of the foregoing evidence it is difficult to understand how the small volume of tree-nuts now being grown in this country can ever drag on the market. Yet our production at the last census was only 310 million pounds—less than two pounds of nuts in the shell per capita. This figure does not include peanuts, which would add 1.7 billion pounds. Aside from its annual habit, it is in a class by itself among the nuts. The peanut is already doing very well for itself in the competitive market,

achieving a production value at the last census of \$177 million—three times that of the tree-nuts combined. Meat producers trek to Washington at the very thought that consumption of their products might fall below 150 pounds per capita; and the state of Vermont recently appropriated \$150,000 annually to advertise milk because consumption had dropped to 695 pounds per capita!

Somehow it would seem that the need for all of us concerned with nuts is to get rid of an inferiority complex. Walnuts, almonds, pecans, and filberts—the distinctions among them are not so important as the similarities. All are products of a marvelous heritage, princes of protein in their own rights. Can it be that they have been called so often by the trade "an accessory to the diet," or "a holiday item" that producers themselves no longer challenge such slurs?

Nut growers in my judgment should begin to compete seriously for the protein market and should not be satisfied with a place at the end of the menu when the stomach is already overloaded.

It seems to me that tree-nut growers can insist upon fairer play. In an eastern town a few weeks ago I noticed in the window of a public agency a poster illustrating the protein foods with nine pictures of beef, milk, fish, liver, peanut butter, eggs, bread, cheese, and dried beans. Tree-nuts were not shown. "Why not?" is the question that a nut growers' institute might well ask. Another question is, "Why is not more research being done on the nutritive values of this basic food?" Such research would soon stop the canards as to digestibility.

Actually, there is enough potential consumer demand on the part of the whole tree-food industry to take up any present "excess production" of nuts. Fruit growers might well give consideration to a point made by Dr. John Harvey Kellogg, former superintendent of the Battle Creek Sanitarium:

"Botanically nuts are classified as fruits, but they differ so greatly from the products known in the market as fruits that they are properly considered in a class by themselves. Nuts are admirably adapted to supplement or complement fruits in the bill of fare for the reason that with few exceptions they consist chiefly of protein and fats. . . . A diet of fruit and nuts may easily furnish everything which the body requires for perfect sustenance." THE END

This is the second of two articles on tree foods by Mr. Stevens, who is director of the University Extension Service at the University of New Hampshire and author of *The Recovery of Culture*. His article "All Together for Tree Food," appeared in our January issue.



Vines are set six feet apart in nine-foot rows, which gives ample travel space for tillage tools and sprayer. Old railroad ties are used for end posts to which the trellis wires are secured. The top wire is stretched at five and one-half feet from the ground and the lower one about two feet from the ground.

John says he doesn't train his vines after the first year's growth like most people in the area do. The common practice is to cut the first year cane back

Left—First spring cultural job in the Phillips vineyard is plowing. Ridges along vine rows are plowed down, centers are disced, and rows are grape-head with a tractor tool. Phillips keeps the vineyard under clean cultivation until August.

Let's Pay a Visit to FRUIT ACRES

Year-around grape program on this eastern fruit farm will be an inspiration to all growers

By ELDON S. BANTA

IF you drive east through the town of Northeast, Pa., you will notice at the outskirts of the town a neat little sign at a farm entrance. You will see the name, FRUIT ACRES, on it. Should you then drive in and talk with the Phillips family, you will consider the farm title quite appropriate.

Fruit Acres is a 450-acre diversified farm business. Owning and operating the land are M. D. Phillips, his son John, his daughter Margaret Pero, and his son-in-law A. J. Pero. You can appropriately call this a family-size farm, for all are interested in its success, and any one of them can tell you just what is going on.

Concord grapes constitute the biggest part of the Phillips' business. They are growing about 150 acres now, with an estimated acreage of 175 in production in the very near future. They are just about the biggest grape growers in Erie County, and among the best, too. They have 125 acres planted to sour cherries and 35 to sweet cherries. The Phillips are planning small increases in acreage of cherries, too. But when you ask them about the 65 acres of apples, they shake their heads and

say that they will have to bulldoze out more trees. Apples are the least profitable fruit crop they grow. In other sections you can find the reverse true.

In addition to fruit, the Phillips farm supports a thriving dairy of 50 cows. Most of the roughage and grain for the herd come from neighboring farms, since most of the Fruit Acres land is planted to fruit.

Now back to the vineyard for a visit with the Phillips family and to see how they manage their vineyards. Let's begin with planting. Concord is the chief variety, although they plant a few vines of promising new varieties for trial. Since their market is the juice factory, Keystone Grape Co-operative in Northeast, Concord is still the best variety for the purpose.

John says he likes to use a tractor-powered post-hole digger to dig holes for vines on the light sandy Chenango soil. However, when he uses it on the heavier clay soils on higher land, he has found that the action of the auger so compacts the soil at the edge of the hole that vine root growth is restricted for the first year or two. In these soils holes are dug with a spade.



John Phillips points to healthy buds he likes to see on his grape vines in early spring. Good pruning and cultural practices produce them.

to two buds. In the Phillips vineyard the practice is to leave one long, vigorous cane and tie it to the wires. In this way a small crop of grapes can be secured the next year, the third year after setting the vines. According to the Phillips, this practice helps to bring a vineyard into heavy bearing sooner than other methods. They will point out that the vines must be fertilized properly and cared for if the practice is to pay off.

Now we come to what might be called the key to successful grape growing, the cultural practices followed. Neglect of this phase has brought more grief to grape growers than any other single factor, so I have been told many times.

At Fruit Acres the vineyards are kept cultivated during the summer from early May until August. Over winter the soil is well protected from erosion by a mat of low growing weeds which come in as soon as cultivation stops. John Phillips admits this is not the best way to keep erosion at a minimum, but he is doing a good job of it anyway.

AMERICAN FRUIT GROWER



Above—Fruit Acres vineyard after plowing and disking. Next rows will be grape-hood. Notice vines are pruned to umbrella system. This requires less tying of canes and provides for good light conditions and ventilation of the grape vines.

Right—Empty boxes are distributed down grape rows before pickers come along to harvest crop.

Below—This type of picking stand uses an old bicycle wheel and makes moving an easier job. The Phillips must have on hand at the beginning of the harvest season about 30 picking stands.



According to some experimental work at the nearby Erie County Field Research Laboratory, the best way to keep erosion to a minimum is through the use of a trashy cultivating system. In other words, keep a growing cover crop partially worked down so it does not compete with the vines for moisture or nutrients and yet is sufficient to prevent run-off of rain. This system is

MAY, 1954

being approached in the Phillips vineyard.

Part of the reason for the dairy herd on Fruit Acres is to furnish manure for the vineyard. The herd produces some 500 tons per year, all of which goes on the vineyards at the rate of seven or eight tons per acre. There is enough to cover about a third of the vineyard acreage each year. So in three years the entire vineyard gets one complete manure covering.

In addition to this, the Phillips spread some 500 tons of grape pomace on the vineyards each year. This they get from the Keystone Grape Co-operative juice plant in Northeast. The pomace is spread at the same rate as the manure, and on land that is not covered by manure.



Referring to work done at the Research Field Laboratory again, we find that ton for ton manure and pomace are about equal in their nutrient values. Both, being of organic nature, help greatly in improving soil structure and waterholding capacity, and in reducing erosion. John Phillips says that he would not be without either one.

Up until 1953 the Phillips had been fertilizing their vineyards with the complete mixture, 10-10-10, at heavy rates. Last year they changed from this to ammonium nitrate only. Two applications were made. The first 200 pounds per acre went on just before plowing started in the spring and the other 200 pounds went on the first of August. Application was made with a six-foot spreader that just fits between the grape rows. This system of soil man-

(Continued on page 38)

Left—Used railroad ties make excellent end posts for stretching the trellis wires at Fruit Acres.



- Michigan Plans Controlled Atmosphere Storage Program
- New Fruit Ice Creams Introduced by Florida

MICHIGAN—Fruit farm storage building activity continues apace. More than 25 fruit farm storages were built in 1953, and it is anticipated that there will be at least 20 more erected in 1954.

Michigan growers visiting with Dr. R. M. Smock at Cornell University, Ithaca, N. Y., and observing farm apple storages in the Hudson Valley in March were greatly impressed by the high quality of McIntosh from controlled atmosphere storages.

As a result of these observations plans are underway for setting up a controlled atmosphere storage program in Michigan with the possibility of starting two or three storages in 1954. Dr. D. H. Dewey, carrying on storage investigations at Michigan State College, East Lansing, is planning to include controlled atmosphere storage in his program of work this summer.—A. E. Mitchell, East Lansing.

NEW JERSEY—Research work in the small fruits field at Rutgers University, New Brunswick, as well as teaching in this field is now in charge of Carter R. Smith, formerly of Washington state. Mr. Smith replaces Dr. Harry K. Bell, who recently went to the department of horticulture at Michigan State College.



C. R. Smith

Mr. Smith is a graduate of Ohio State University and has done work at the Citrus Experiment Station, Riverside, Calif., and in the department of horticulture at Washington State College, Pullman, where he obtained a masters degree in small fruits nutrition. For the two years previous to his appointment to the staff of the department of horticulture at Rutgers he was with the Washington Agricultural Experiment station substation at Mount Vernon.

GEORGIA—So far the peach deal looks good (Apr. 12). There has been little frost damage to the fruit with the exception of a few poorly located orchards. Records show that in the last 18 years there has been no serious damage from frost after April 15 in the Fort Valley area.

Plum curculio population is low. In orchards sprayed with parathion few adults are to be found. Most growers have already applied the shuck-off spray. A very favorable bloom season of warm, dry days prevented much brown rot blossom blight.

There has been a very heavy fruit set and in many orchards thinning will be necessary.

Several packing sheds are installing new grading machinery and hydrocoolers in the middle Georgia and south Georgia peach sections. Considerable interest is being shown in new packages. Growers expect that within the next five years a major change in peach packages will take place that will meet with more favor in the consuming areas than do our present packages.—Earl F. Savage, Experiment.

FLORIDA—While not yet on the market, two new fruit ice creams developed by Walter A. Krienke, Florida Agricultural Experiment Station dairy technologist, have been given en-

NAI MEETING

The annual meeting of the National Apple Institute will take place at Hotel Niagara, Niagara Falls, N. Y., on June 17-19. Make reservations with Truman Nald, Sec'y., 726 Jackson Place, Washington 6, D. C.

thusiastic approval by those who have tested them. They are mango and guava ice creams.

An orange ice cream developed earlier by Krienke and Dr. Leon Mull, also of the experiment station dairy science department, is now being sold commercially. The fruit flavoring material, made from fresh fruit, is injected into the basic vanilla ice cream, giving the ice cream not only a delicious flavor but an attractive appearance as well.—Clyde Beale, Gainesville.

VIRGINIA—Howell M. Bond, 79, prominent orchardist and farmer of the Apple Pie Ridge in Frederick County, died April 5, 1954. Mr. Bond is survived by three brothers, two of whom are prominent Virginia orchardists, Allen

M. Bond and Walker McC. Bond of Winchester. Third brother is Edward L. Bond of Clarksboro, N. J.—John F. Watson, Sec'y, S. aulton.

MINNESOTA—The state entomologist's office is providing an important service to apple growers by notifying them of the dates of initial and peak emergence of plum and apple curculio, codling moth, mites, and apple maggots. In addition, certain growers will collect apple leaves in their orchards and mail them to Dr. T. H. King of the plant pathology department at University Farm. This will be done at regular intervals to enable Dr. King to provide growers with information about the time of emergence of scab spores.

For the first time many growers will spray and dust in the rain if necessary to control scab. Nearly all of the recommended scab sprays will be tried out commercially.

Members of the Minnesota Berry Growers Council reported that well mulched strawberry plants appear to have come through the winter in good condition. Acreage of berries is low and there are not many plants available (Continued on page 16)

FRUIT PEST HANDBOOK

(THIRTY-THIRD OF A SERIES)

FRUIT SPOT OF APPLE

FRUIT SPOT, or Brooks spot as it is sometimes called, is frequently a troublesome fungus disease of apples. Infections occur from June to August and are particularly noticeable toward the end of the growing season.

The spots are often inconspicuous at picking time but develop extensively unless the fruit is promptly placed in cold storage. The spots are rarely more than one-fourth of an inch in diameter, are green to dark green on yellow or green fruit areas and red or black on red areas.

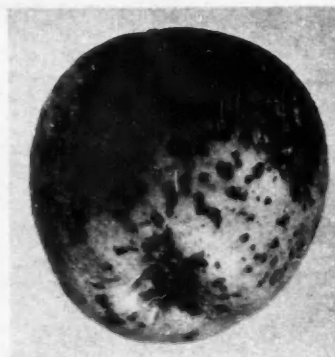
These spots are usually most abundant near the blossom end of the apple but may be scattered over the entire fruit. The individual spots are roughly circular to irregular in outline, are slightly sunken, and have a tiny dark spot in the center.

There is also a tiny spot of dark-colored pulp tissue under each spot, but the injury is so superficial that this discolored flesh is frequently missed when a fruit is being examined. If infected fruit is not placed in cold storage promptly, the spots enlarge and are noticeably sunken because of the collapse of the pulp tissue.

Fruit spot occurs on practically all varieties and frequently causes serious losses by injuring the fruit of such important commercial varieties as Grimes Golden, Delicious, Jonathan, Rome Beauty, and Stayman.

Control. Like sooty blotch and flyspeck, this disease is usually of minor importance when fungicides are used with the sprays

applied during the summer for control of codling moth. However, with the advent of the more effective organic insecticides, the need for summer sprays for codling moth has decreased and there has been an attendant rise in the number of fruit affected by the fruit spot fungus. Summer sprays of ferbam for control of sooty blotch and flyspeck also prevent the development of fruit spot.—John C. Dunegan, USDA.



Apple infected with fruit spot. USDA photo.

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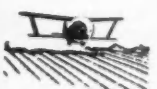
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CALENDAR OF COMING MEETINGS AND EXHIBITS

June 2—Illinois State Horticultural Society summer orchard day, Harvey Hartline Farm, Carbondale. Harold J. Hartley, Sec'y, Carbondale.

June 15-17—South Dakota State Horticultural Society annual meeting in joint convention with affiliated State Federation of Garden Clubs, Dell Rapids.—W. A. Simmons, Sec'y, Sioux Falls.

June 17-19—National Apple Institute annual meeting, Niagara Falls, N. Y.—Truman Nold, Sec'y, 726 Jackson Place, Washington 6, D. C.

June 18—Small Fruits Day, Ohio Agricultural Experiment Station, Wooster.—C. W. Ellenwood, Dept. of Hort., Wooster.

June 22-24—Pacific Branch, Entomological Society of America, 2nd annual meeting, Pilot Butte Inn, Bend, Ore.—Chas. H. Starker, Press Chairman, P. O. Box 3819, Portland 8, Ore.

July 14—Massachusetts Fruit Growers Assn. summer meeting, University of Massachusetts, Amherst.—A. P. French, Sec'y, Amherst.

July 21—University of Connecticut fruit growers' day, Storrs.

Aug. 16-22—Citrus Growers Institute 21st annual meeting, Camp McQuarrie, Ocala National Forest, Ocala, Fla. Arranged and directed by University of Florida Agricultural Extension Service, Gainesville.

Aug. 27—Four-state joint summer meeting (Md., Pa., W. Va., Va.), in Timberville section of Rockingham County and Mt. Jackson section of Shenandoah County in Virginia. Host: Virginia State Horticultural Society.—John Watson, Sec'y, Va. Soc., Staunton.

Aug. 29-Sept. 1—International Apple Association 60th annual convention, Hotel Chinoak, Yakima, Wash.—Norbert Eehmeyer, Sec'y, Public Relations & Promotion, 1302 18th St., N.W., Washington 6, D. C.

Sept. 25-26—Calhoun County Apple Festival and Illinois State Fruit Queen Contest.—Harold J. Hartley, Sec'y, Hort. Soc., Carbondale.

Oct. 20-22—Florida State Horticultural Society 67th annual meeting, Miami Beach.—Ernest L. Spencer, Sec'y, Bradenton.

Oct. 21-30—National Apple Week (Oct. 30, National Apple Day).—National Apple Week Assn., 1302 18th St., N.W., Washington 6, D. C.

Nov. 4-5—Minnesota Fruit Growers Assn. and Wisconsin State Horticultural Society joint annual meeting, Winona, Minn.—J. D. Winter, Sec'y, Minn. Assn., University Farm, St. Paul 1.

Dec. 1-2—Connecticut Pomological Society annual meeting, Hotel Bond, Hartford.—S. P. Hollister, Sec'y, Storrs.

Feb. 9-11, 1955—Ohio State Horticultural Society annual meeting, Neil House, Columbus.—C. W. Ellenwood, Sec'y, Wooster.

STATE NEWS

(Continued from page 14)

to growers for new planting this season. There is considerable interest in handling procedure for berries that have been picked wet. One grower reports that berries picked in the rain and properly cooled and dried, stood up as well as berries picked under dry conditions.—J. D. Winter, Sec'y, St. Paul.

NEW HAMPSHIRE—Wallace P. Mack, Jr., of Londonderry, N. H., and Ben Drew, Westford, Mass., recently visited France and Germany. The object of their trip was to obtain first hand information on the processing and consumption of apples in those countries, especially cider. France, according to census reports, consumes more apples in the form of cider than the total production of apples in the U. S.—E. J. Rasmussen, Sec'y, Durham.

NORTH CAROLINA—Representative growers from the state's apple producing districts met on April 2 in Asheville for the purpose of forming the North Carolina Apple Growers Association. Officers elected are: Wm. E. Dalton, Hendersonville, president; Richard Barber, Waynesville, vice-president; and Boyd C. Campbell, Taylorsville, secretary-treasurer. Assisting the officers and directors selected by the growers to draft a constitution and by-laws and to get the new organization off to a good

start are Dr. M. E. Gardner, head, department of horticulture, North Carolina State College, and Dr. T. T. Hatton, state extension fruit specialist.

CALIFORNIA—A new grape virus is reported to be making alarming progress in vineyards. It has been found in Fresno and Tulare counties, in the heart of the San Joaquin Valley grape production area, states Fred W. Read, assistant manager of the California Fruit Exchange, Sacramento. It has also been found in the Santa Clara and Napa valleys, and is appearing in the Imperial and Coachella valleys.

It can easily become one of the greatest threats to the grape industry, Read reports, and the only remedy known at present is to rip out affected grapevines. State and federal funds have been requested by the California Fruit Exchange for the purpose of conducting a survey to determine how widespread the disease is, its source, and methods for control.

Arthur Gregory, 86, Redlands citrus grower, died recently. With other Redlands citrus growers Mr. Gregory founded Mutual Orange Distributors, the state's second largest citrus marketing organization, and served MOD as secretary and general manager.

MASSACHUSETTS—Extension horticulturist W. H. Thies left by plane on April 2 for Rome and thence to Belgrade, Yugoslavia, on a three months' horticultural mission with the Food & Agriculture Organization of United Nations. This is a follow-up assignment in connection with a previous mission of 12 months from which he returned last September.



W. H. Thies

A leave of absence from the University of Massachusetts has been granted. Professor Thies has been extension horticulturist in Massachusetts since 1924.

WASHINGTON—Harold Simonds, 71, former Chelan County agent and well known to fruit growers throughout the state, died recently at Wenatchee. Mr. Simonds served as Chelan County agent from 1938 until his retirement in September, 1949. He was a native of Milwaukee, Wis.

Stanley S. and John E. Griffin were accidentally killed recently. They were electrocuted at their farm near O'Sullivan Dam when the section of aluminum irrigation pipe which they upended contacted a power line.

SOUTH CAROLINA—The South Carolina State Horticultural Society was recently reorganized and is now known as the South Carolina Peach Council. The state council will cooperate with the National Peach Council. Officers of the new association are David L. White, Hartsville, president; Earl R. Taylor, Greer, vice-president; Mark Boatwright, Johnson, vice-president; Roy J. Ferree, Inman, secretary; and Tracy J. Gaines, Inman, treasurer.

Precooling of peaches is being given much consideration in South Carolina. It was recently pointed out that while it is only about two years old, precooling or hydrocooling has become an accepted practice in the industry. One big advantage of lowering the temperature of peaches as they come from the field, according to authorities, is that it gives the retailer two to three days rather than 12 to 14 hours to move peaches—provided the peaches are a quality product to start with.

VERMONT—Earl Krantz, Middlebury, was elected president of the Vermont State Horticultural Society during its recent annual meeting, replacing Ben Beck, Middlebury. Other officers elected were: Wray Griffin, Castleton, vice-president; Stuart T. Witherell, Middle-
(Continued on next page)

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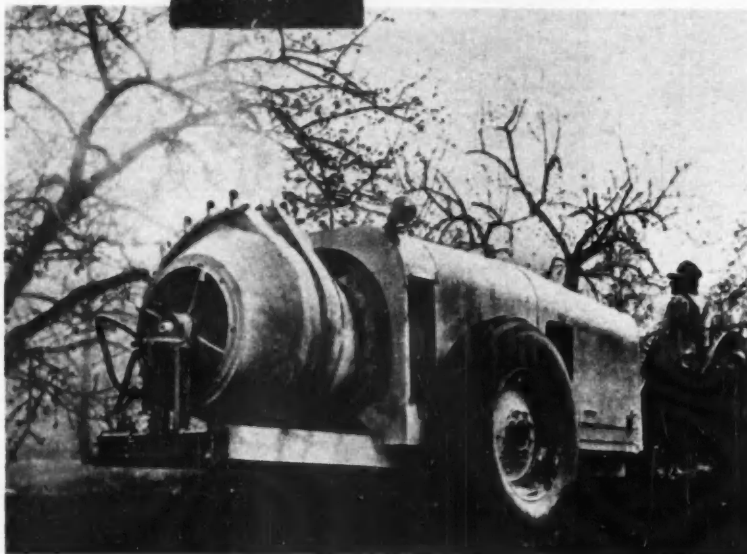


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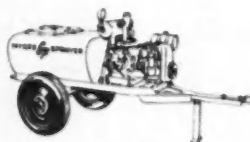
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STATE NEWS

(Continued from page 17)

bury; and C. Lyman Calahan, Burlington, secretary. William H. Darrow, Jr., Putney, and Lindsay Jarvis, Springfield, were elected delegates to the New York-New England Apple Institute. Carleton G. Howe, Dorset, was chosen as delegate to the agricultural college advisory committee.

CROP PROSPECT REPORTS from various areas: **SOUTH CAROLINA**—Frost and cold weather caused some injury to peach buds and blossoms. Full bloom of most peach varieties in Spartanburg area was during week of March 15. **KENTUCKY**—Apples and peaches safe so far (Apr. 10). On April 1, with peaches in central eastern section 80 per cent in full bloom, temperature hit 25° but left plenty for a full crop. One per cent of Blake-more strawberry bloom in lower half of state got a black eye. Harvest will likely start last few days of April. **VIRGINIA**—Low temperatures on April 3-5 injured peaches but difficult at this time (Apr. 12) to assess damage. Some damage to center bud on red Delicious. Peach prospects are for medium sized crop. Apples good on most varieties except Stayman, which had heavy crop last year. "On" year for York, Virginia's principal variety. **ILLINOIS**—estimated commercial peach crop of nearly 800,000 bushels may be lowered somewhat due

THE GOLDEN APPLE

Sales of apples undoubtedly are being stimulated as a result of the popular new musical, "The Golden Apple," which opened at the Phoenix Theatre in New York in mid-March. The setting for the play is an orchard at the foot of Mount Olympus in Washington. The Washington State Apple Commission, quick to take advantage of an opportunity to publicize apples, presented the stars of the play with bouquets of Golden Delicious on opening night, and a huge box of Washington state Golden Delicious was presented to the cast. The play is appearing at a most opportune time, for Washington state apples are being widely advertised in the New York area at this season.

to 22° temperatures in some orchards on March 31. **MICHIGAN**—Stage of advancement of fruit buds considered normal owing to cool weather in March and early April. Flower buds of all fruits have come through winter with little to no injury. Only exception is peach trees in low areas without good air drainage, in which buds have been killed almost 100 per cent. **NEW JERSEY**—Temperatures of 22° in central and south Jersey and 20° in northern counties caused some damage to peach bloom and early blooming blueberry varieties but apparently not serious. Season about one week later than in 1953. Severe hailstorms on April 8 reported to have caused damage to fruit. **CONNECTICUT**—Reduction of peach crop might be between 15 and 35 per cent due to low temperatures, most severe damage occurring during January in blocks subjected to minus 15° or below. No reduction thus far (Apr. 10) in apple or pear crops. **VERMONT**—Near zero temperatures and heavy snows in many sections during first week of April continued to make this a slow season. Little evidence of winter injury to fruit trees even though some low minimum temperatures occurred during winter. Soil moisture conditions very favorable; blossom prospects good. Somewhat lighter fruit bud condition compared to this time a year ago. **MASSACHUSETTS**—Very light peach crop is indicated, due to temperatures of 14 to 18 below zero during January. **FLORIDA**—Minor damage to citrus in central and southern sections by low temperatures in early March. Bloom was generally heavy and another good crop is in prospect for 1954-55.

**APPLES:**

Spider mites:
European red mite
Two-spotted mite
Willamette mite
Clover mite
Woolly apple aphid
Green apple aphid
Rosy apple aphid
Forbes scale
Codling moth
Plum curculio
Red-banded leaf roller
Bud moth

CHERRIES:

Black cherry aphid
Fruit tree leaf roller

CRANBERRY:

Leafhoppers
Spittlebug nymphs
Black-headed fireworms
Cranberry fruitworm

CITRUS (California Only):

California red scale
Yellow scale
Purple scale
Black (single-brooded) scale
Soft scale
Citricola scale
Cottony-cushion scale
Aphids
Thrips
Orange worms

DATES:

Nitidulid beetle
(dried fruit beetle)

GRAPES:

Grape leafhopper
Spider mites
Mealybug

PINEAPPLE:

Mealybug

PEACHES:

Spider mites:
European red mite
Two-spotted mite
Oriental fruit moth
Plum curculio

PEARS:

Spider mites
Pear psylla
Codling moth
Plum curculio
Fruit tree leaf roller
Red-banded leaf roller
Mealybug

PECANS:

Spider mites
Aphids

**PLUMS
and PRUNES:**
Mealy plum aphid

The only organic phosphate insecticide offering a **Wide margin of safety in handling...MALATHION***

The list of USDA-accepted claims for malathion continues to grow because this new multipurpose insecticide combines high efficiency in controlling insects with a wide margin of safety to the applicator and maximum safety to plants.

Malathion, called by the USDA "one of the safest insecticides to handle," is easy to use and is compatible with most other spray materials. Malathion residues on crops disappear quickly—are generally less than 1.0 part per million ten days after last application.

Write for MALATHION GROWER'S GUIDE

Malathion insecticides are available from well-known manufacturers. Consult your local agricultural authorities for suggestions on dosages and application procedures.

**Also known as MALATHON*



AMERICAN Cyanamid COMPANY

Manufacturer of Malathion Technical
AGRICULTURAL CHEMICALS DIVISION
30 Rockefeller Plaza, New York 20, N. Y.

Chemical Progress Week, May 17-22



UNTREATED APPLES

More and better
apples and peaches
with **PHYGON-XL!**

TREATED WITH PHYGON-XL,
THE ORCHARD FUNGICIDE

Bushels of
extra dollars
for you!

It costs but a few cents per tree to apply Phygon-XL, for it's the *least expensive organic fungicide* you can use. But more important, you'll market far more ^{*1} apples for far greater profits. Phygon-treated apples ripen more uniformly. You'll have fewer "rejects" because Phygon-XL, when properly applied, gives you almost 100% apple scab control.

Besides apple scab, Phygon-XL effectively controls bitter rot of apples and peaches, California blight of peaches, brown rot and blossom blight of peaches, peach leaf curl and many other fungus diseases. Phygon-XL is simple to apply. It mixes effectively with the most commonly used fungicides and insecticides, is harmless to pollen and bees and does not affect odor or flavor of the fruit.

Order Phygon-XL or formulations containing Phygon from
your local supplier today and watch your profits grow.



Naugatuck Chemical

Division of United States Rubber Company
ELM STREET, NAUGATUCK, CONNECTICUT

producers of seed protectants, fungicides, miticides, insecticides, growth
retardants, herbicides; Spergon, Phygon, Aramite, Synklor, MN, Alanap.

APPLE PROMOTION

All the King's men are backing
a national educational campaign

A **MILESTONE** in the history of apple promotion was reached at the last meeting of the National Apple Institute when all regional groups agreed on a nationwide promotional program. A feature of the program has been a series of advertisements to doctors, dentists, and dieticians. The program includes a paid advertising campaign in professional journals of the American Medical Association, American Dental Association, and others, at a cost of about \$20,000. The ads stress the health aspects of apples. For instance, the message to physicians says:

Physicians Given Facts

"A fresh apple is a natural and delicious appetite-appeaser. For between-meal snacks or dessert, a bright, fresh apple provides just enough quickly assimilable carbohydrate to quench an over-active appetite. At any time, its normalizing bulk aids digestion and elimination . . . helps relieve that empty feeling of low calorie diets. A fresh apple is not only a toothsome morsel, but its crisp, firm texture helps restore gingival tone often impaired by highly refined food. Won't you consider nature's best tasting appetite-appeaser as a regular part of your patients' weight control regimen?"

Message to Dentists

To dentists, the message goes: "The good you accomplish at your chair is frequently undone by today's soft, refined diet. A fresh juicy apple after meals is a tasty aid to conservation of dental health. The apple is a succulent cleanser, of natural efficacy, convenient and enjoyable. Its firm chewable texture gives needed massage to flabby gums. Its delicate aroma and lively flavor stimulate the salivary glands to copious secretion. These benefits are obtainable in greater measure from the enjoyment of apples than in any other way. A recommendation of apples after meals is one whose merit your patients will promptly substantiate by conscious experience."

Brochure for Growers

An illustrated brochure was recently published by the National Apple Institute telling of its history and principal objectives. This is the first publication of this type that NAI has issued in its 20-year history. Copies were mailed to growers through their state and regional organizations.

The booklet concludes: "In the final analysis, our program will only go

AMERICAN FRUIT GROWER

ahead if you as an individual apple grower will grasp the opportunity to buy for yourself, at a cost of only a fraction of one cent per fresh bushel, a great national crusade costing hundreds of thousands of dollars and designed to make our apples a necessity in every American home from coast to coast and from the Great Lakes to the Rio Grande!"

"Gateway to Health"

This is the provocative title of National Apple Institute's new film telling how apples promote good dental health. One grower reports: "We have become

A delectable aid to dental health



The good you accomplish at your chair is frequently undone by today's soft, refined diet. A fresh juicy apple after meals is a tasty aid to conservation of dental health. The apple is a natural cleanser, of natural efficiency, convenient and enjoyable. Its firm chewable texture gives needed massage to baby gums. Its delicate aroma and lively flavor stimulate the salivary glands to copious secretion. These benefits are obtainable in greater measure from the enjoyment of apples than in any other way. A recommendation of apples after meals is one without which your patients will promptly substitute by conscious experience.

1944 film "Gateway to Health" is shown under license from National Apple Institute, Inc. 1215 K Street, N.W., Washington, D.C. 20005. It is available from practices of Fred B. Miller, D.D.S., Chicago, Ill. For demonstration purposes of dental health, especially suitable for professionally sponsored public relations programs. Write to address below.

THE APPLE GROWERS OF AMERICA

Reprinted from the February 1954 issue of Oral Hygiene

This attractive advertisement is appearing in magazines that are serving the dental profession.

so enthused with this film that we have banded the fruit growers together to purchase a print and will see that every school in our section shows it. Our local principal has promised that he will recommend it to anyone."

Copies may be obtained for showing through the National Apple Institute, 726 Jackson Place, N. W., Washington 6, D. C., or regional and state members, as follows:

Appalachian Apple Service, Martinsburg, W. Va.; California Apple Growers Council, Sebastopol, Calif.; Delaware State Apple Commission, Dover, Md.; Hood River District, Hood River, Ore.; Idaho State Horticultural Society, Boise, Idaho; Illinois Fruit Council, Belleville, Ill.; Indiana Horticultural Society, Lafayette, Ind.; Kansas State Horticultural Society, Manhattan, Kans.; Michigan State Apple Commission, Lowell, Mich.; Minnesota Fruit Growers Association, Mound, Minn.; and the Missouri State Horticultural Society, Columbia, Mo.

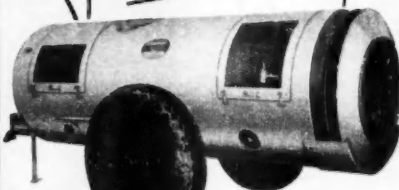
THE END

MAY, 1954

Again and Again Owners Report BETTER COVERAGE— CLEANER CROPS

CARDOX AQUA-JET SPRAYER

The Sprayer That
Owners Endorse



**ONE MAN
DOES THE JOB!**
Tractor Seat Control gives you instant control—on, off or to either side.

Only CARDOX Aqua-Jet Sprayer combines these three features you must have to do your job best:

1. AQUA-JET HEADS

Adjustable, impinging jets that give any desired pattern with lowest pressure drop.

2. MECHANICAL AGITATION

Spray material is always thoroughly mixed—never too "strong" or too "weak."

3. HIGH PRESSURE PUMP

Gives you the powerful "punch" needed for long-range projection and complete coverage.

This combination of features—basic and exclusive with the CARDOX Aqua-Jet Sprayer—assures you of more effective spraying. You can always put the spray where you want it . . . in the pattern you want . . . with uniformly mixed material . . . and with least possible waste, using bulk, semi-concentrates or concentrates!

If You Own a High Pressure Sprayer

You Can Add
CARDOX
AQUA-JET
BLOWER



and Get
BETTER SPRAYING
with Aqua-Jet Heads

Plus ONE MAN OPERATION
at Much Lower Cost!

Turn your high-pressure sprayer into an efficient one-man rig by adding the easily attached CARDOX Aqua-Jet Blower! Get the super performance and coverage of Aqua-Jet adjustable, impinging jets—plus high velocity blower air-stream—plus optional* tractor seat control!

*Furnished at slight extra cost.

GET BETTER SPRAYING RESULTS AT LOWER COST

See your Aqua-Jet dealer—or write us for his name.



AQUA-JET HEADS

—available only on CARDOX Aqua-Jet Sprayer and CARDOX Aqua-Jet Blower. Eight of these twin impinging heads atomize spray, saturate trees to a distance of 40 feet. Easily adjusted for all patterns.

CARDOX CORPORATION

BELL BUILDING • CHICAGO 1, ILLINOIS

Factories at:

San Jose
California

Mono
Illinois

Ottumwa
Iowa



with Du Pont "Marlate" without russetting or other injury

The heavy infestation of curculio in many areas last year was a severe test for all control products. Results again showed that "Marlate" 50 methoxychlor insecticide does the job exceptionally well and does it without russetting or other injury even on sensitive varieties like McIntosh and its cousins.

Massachusetts: "Marlate" at 3 pounds per 100 gallons combined with $\frac{3}{4}$ pound of "Fermate" and 3 pounds of sulfur, gave top protection against curculio and codling moth in carefully run tests. Only .7% of McIntosh apples were wormy drops and .2% were stung at harvest. The checks in these tests were 50% injured.

Connecticut: "Marlate" and DDD in combination gave top control of curculio, apple maggot and codling moth, and checked minor pests like European apple sawfly, Tentiform leaf miner, and Japanese leafhopper. Fruit showed no external insect injury or russetting.

New York: Top control against curculio in Western N. Y. at 3 pounds per 100 gallons in calyx and 10-day sprays . . . for Eastern N. Y. at 3 pounds in calyx, 10-day and first cover sprays. Replaces DDT in 1st cover sprays because it controls both curculio and codling moth. In late sprays, controls apple maggot, at 2 pounds per 100 gallons, gives 10 days protection. Important: no residue hazard when used within 7 days of harvest.

New Jersey: "Marlate" (2 pounds per 100 gallons) and lead arsenate (2 pounds per 100 gallons) within 7 days of harvest, gave best control of curculio ever reported. Checked codling moth, too.

Virginia: "Marlate" recommended for use with Shenandoah Fungicide Schedule. Compatibility of "Marlate" with fungicides means less russetting. Top control of insects, too!

Midwest: Low infestations of both curculio and codling moth easily controlled with "Marlate." At recommended 500 gallons per acre, using "Marlate" (2 pounds per 100 gallons) in 2 separate sprays means only 20 pounds of "Marlate" per acre per season. That's low-cost, effective insect control.

FOR CHERRIES, TOO

"Marlate" shows great promise following two years of use on Cherry fruit fly in New York State. Washington state growers also use "Marlate" and get excellent results. In Wisconsin, "Marlate" at 2 pounds per 100 gallons controls cherry fruit worm.

MANY OTHER USES

It's versatile! "Marlate" 50 is effective on fruit and vegetables . . . it's an approved fly spray on dairy cows and in dairy barns too. Use it as a spray or dust. See your dealer for more details and recommendations or write Du Pont, Grasselli Chemicals Dept., Wilmington 98, Del.



Marlate[®]
Methoxychlor Insecticide

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

On all chemicals always follow directions for application. Where warning or caution statements on use of the product are given, read them carefully.

THE QUESTION BOX

Would you recommend that I try my hand with colchicine to produce new and larger fruit varieties?—Maryland

Colchicine is a dangerous poison, according to George M. Darrow of the USDA. Though the technique of producing polyploids is simple, it is not simple or easy to recognize and to propagate affected tissue. It is difficult. The most extensive and successful results with fruits have come during the past two years in the work of Dr. Haig Dermen with grapes, but only after some 15 years of experience. We do not have a tetraploid raspberry yet, though a tetraploid of a black raspberry and of a very hardy red would be very useful in our work; and we have tried. Of course, with our recent experience and success with grapes we may advance much more rapidly. The first effect of colchicine is to injure and stunt the new growth, and it is only much later that polyploid tissue appears. Colchicine does not immediately make large flowers and large fruits.

In the February issue of AMERICAN FRUIT GROWER, page 18, an underdrive is mentioned for a tractor. Could you tell me where I could buy or at least get plans to make such an underdrive for an Oliver HG tractor?—Wisconsin

Write Tractor Specialties, 1650 S. First St., San Jose, Calif.

Can you give me information on the use of calcium hypochlorite for controlling fire blight?—Georgia

This material has been recommended at the rate of one-half pound to 100 gallons of water. Two applications are made, one when about one-fourth of the blossoms are out and another when about three-fourths of the blossoms are out. No insecticides should be used at this time. In the case of severe fire blight, it is possible that calcium hypochlorite might be used in some of the early cover sprays. However, this last recommendation is questionable. At the moment there is much interest in the use of antibiotics for the control of blight, as described in the November, 1953, issue of AMERICAN FRUIT GROWER.

Why do Golden Delicious split even though there has been no rain?—California

Excess moisture in the fruits is believed to cause cracking in Golden Delicious. This condition could be brought about by a high moisture content in the soil and with low evaporating power of the air coupled with advanced maturity, even though no rain has fallen. Russeted fruit will split more readily than non-russeted. Accordingly, avoidance of materials and treatments which cause russetting will aid in reduction of splitting.

Will the constant use of chemical thinning have a detrimental effect upon apples and pears?—Washington

No. On the contrary, constant use of chemical thinning sprays promotes annual bearing, reduces overload, and helps to maintain the tree in good vigor.

AMERICAN FRUIT GROWER



A one-pound glass jar of Royal spiced apple halves, cored and unpeeled and packed in heavy syrup, product of Oceana Canning Company.

SPICED JONATHANS

Schoolboy size supplements
short spiced crabapple supply

A NEW apple product has been put on the market by the Oceana Canning Company of Shelby, Mich., during the past year. The product, developed by Howard C. McDonald, a member of the firm, is a spiced apple. It is similar to the whole spiced crabapples which have been one of the most popular products of the Oceana firm for years.

When the supply of crabapples each year continued to be far short of the demand, experiments were started to find something to supplement them. For more than a year experimental packs were made with different varieties of fruit and various types of containers. Finally, it was found that Jonathan apples would cook well and maintain their firmness and shape. They are naturally small and are grown in abundance in western Michigan.

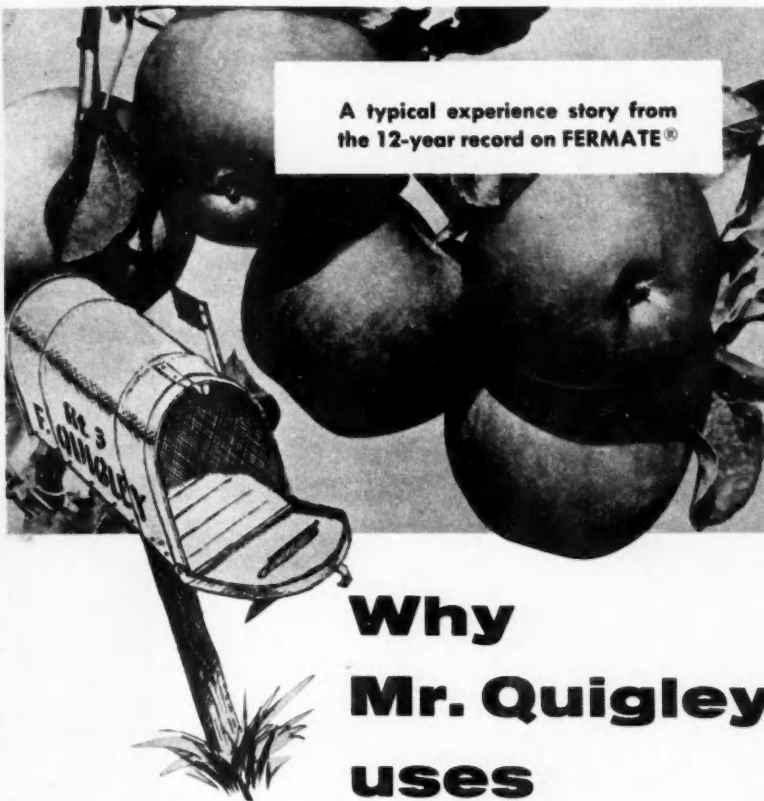
After these months of experimenting it was decided to use the Jonathan "schoolboy" size. These apples are cored, halved, and packed in heavy syrup with spices and U.S. certified red coloring added. They are packed in No. 10 tin cans for institutional trade and in two sizes of glass jars for the retail trade.

A few hundred cases were packed last fall and introduced in three major markets.

It appears that the new product is going to be highly popular and will provide a longer period of operation for the Shelby plant. This will mean more work for the people of the area as well as providing a good market for the small Jonathans.

THE END

MAY, 1954



A typical experience story from
the 12-year record on FERMATE®

Why
Mr. Quigley
uses

Fermate®

ferbam fungicide

Ford F. Quigley is a well-known fruit grower near Willoughby, O. Like other fruit men, he has to be a student of disease control. Read what he says:

"I have used Du Pont's "Fermate" ever since it has been available. My spray program for scab is built around "Fermate" and has been for many years. I like "Fermate" because it is a mild fungicide that gives excellent finish and outstanding disease control. It is easy to use, non-toxic, and builds up orchard vigor year after year. I have used "Fermate" on Cortland, McIntosh, Red Delicious and Wealthy apples. On plums, it is the most effective

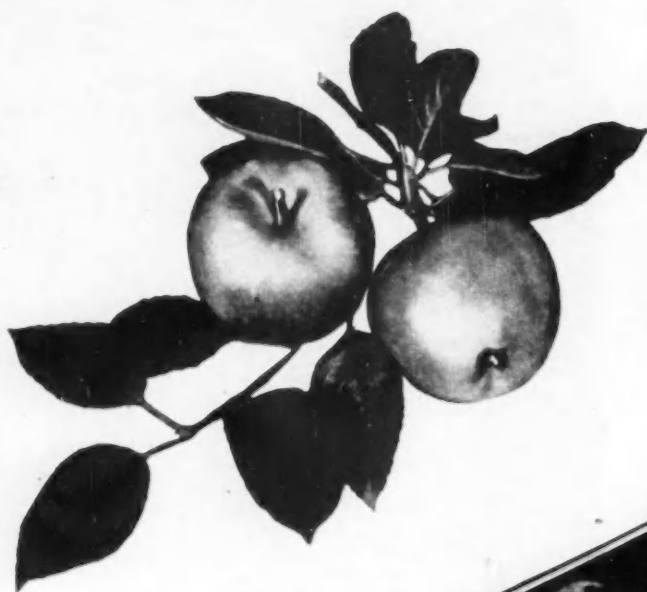
chemical I have used for brown rot. On grapes, I have recommended "Fermate" to my veterans' horticultural training class because "Fermate" improves the foliage materially. I believe "Fermate" is the best chemical we have for black rot. "Fermate" is a product that growers can use with safety and reliability."

This is just one of many reports of grower experience with "Fermate." Let us send you our booklet summarizing 12 years' results from grower use and experiment-station tests. Write Du Pont, Grasselli Chemicals Dept., Wilmington 98, Delaware.



On all chemicals always follow directions for application. Where warning or caution statements on use of the product are given, read them carefully.

BETTER THINGS FOR BETTER LIVING...THROUGH CHEMISTRY



more high-grade
fruit with
ARAMITE®!

more
sales dollars
for you!



Before mites strike, be prepared with Aramite, today's safest strongest mite-killer—be prepared for higher yields of high-grade apples and peaches—hence more money at market-time.

Aramite gives outstanding control of European Red Mite, Pacific Mite, Two-Spotted Mite and Clover Mite. Agricultural authorities throughout the country enthusiastically report new Aramite

achievements with deciduous fruit, year after year.

Aramite-Sulfur Compatibility Among Its Advantages. All-inclusive tests prove that Aramite works very well with sulfur as with most other insecticides. In addition, Aramite is extremely easy to apply, is harmless to mite-killing insects and its long residual effect saves you reapplication costs.

Order Aramite or formulations containing Aramite from your local supplier today and watch your profits grow.

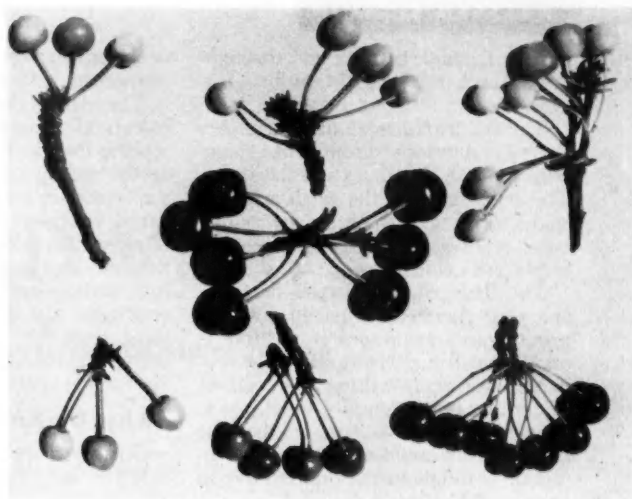


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producers of seed protectants, fungicides, miticides, insecticides, growth retardants, herbicides: Spergon, Phygon, Aramite, Synklor, MH, Alanap.



Don't Let Up on WESTERN X-DISEASE and LITTLE CHERRY

These diseases, caused by the same virus, continue to be a major problem in Northwest stone fruit orchards

By A. W. HELTON

Idaho Agricultural Experiment Station

THE answer to the question, "Are these two diseases as serious as we thought?" is an emphatic "yes!"

The peculiar behavior, especially of little cherry, in the Northwest during the past two years has caused the question to be raised several times. We must admit that there are things about these diseases we don't yet know, because we aren't able to explain these peculiarities in behavior to our satisfaction. Nevertheless, the virus is still present and its potential danger is as great as it ever was.

The western X-disease of peach is the most serious disease of peaches in Idaho. Little cherry disease of sweet and sour cherries is one of the most serious cherry troubles. Losses are heavy every year, both in terms of trees lost and reduced yield. Surveys were conducted throughout the state for several years in an effort not only to learn more about the field behavior of these diseases, but to acquaint growers with them so that they might be better able to keep orchard spread reduced by prompt tree removal.

One virus is responsible for three diseases: the western X-disease of peach, the little cherry disease, and the red leaf disease of wild chokecherries.



Symptoms of western X-disease in peach leaves, showing upward rolling of leaves, downward drooping on twigs, dark irregular blotches. Extensive shot-holing has not yet taken place.

However, spread among these varieties in the field does not seem to be a major factor in the West—certainly not in Idaho.

Regional research results indicate that several strains probably exist within this western X-disease-little cherry-red leaf complex, and that there is some difference in varietal reaction. It is doubtful that trees can be saved by branch removal; results

Photograph above shows fruit symptoms of little cherry in Montmorency sour cherry. The two spurs in the center are unaffected; surrounding spurs show various degrees of symptom severity.

where this technique has been employed have not indicated that it is a dependable method. Known species of leaf hoppers spread the virus, and other insects may be involved.

Most stone fruit growers have some idea what the western X-disease looks like and what the characteristics of little cherry are. Western X-disease causes yield reduction and eventual tree death, but the prominent symptoms appear in the leaves. They tend to become pale, roll upward toward the midrib, droop downward from the twigs, and develop dark reddish-purple blotches over the leaf surface.

These blotches spread over the leaf in an irregular manner, dry up and drop out. This results in a ragged leaf. Systematic arsenic injury also causes dark spotting and shot-holing in the West, but the color is darker and the shot-holes are more concentrated at the margins and between the veins instead of spreading irregularly across the veins.

Heavy defoliation of an X-disease-infected branch usually accompanies this spotting. Shaking the branch lightly causes most of the remaining leaves to drop. Infection spreads

WESTERN SECTION

rapidly through the tree and throughout the orchard. Trees die within a few years.

The red leaf disease in wild chokecherries develops prominent symptoms on both the leaves and the fruits. The fruits take on the small and pale characteristics of the little cherry disease, whereas the leaves develop a bright red color.

The little cherry disease in sweet and sour cherries ordinarily does not produce leaf symptoms if the tree is on Mazzard root. However, if the root is Mahaleb, rapid wilting and death of the entire tree generally takes place. This has a good feature in that the tree doesn't remain alive to spread infection throughout the orchard over a long period of time.

In typical cases of little cherry fruit symptoms, gradations may be found, extending from apparently unaffected fruits to fruits totally lacking in color and much reduced in size. This not only may occur on the same tree, but may take place on the same twig, or even on the same fruit spur. Sometimes one side of a single fruit is affected while the other side shows little or no effect. Field observations indicate that whereas the virus moves rapidly throughout the tree, symptom

development lags considerably behind movement of the virus.

The curious thing about little cherry infections in trees on Mazzard rootstock is that the trees appear to be perfectly healthy except for the fact that the fruits are reduced in value or rendered worthless. This again depends to a considerable degree on strains of the virus and host varieties, but recent information indicates that seasonal conditions also may play a part. Such trees, since they usually remain in the orchard indefinitely, furnish inoculum for further spread of the disease.

What We Know About Control

Since viruses move about only inside the infected tree or other plant they cannot be reached or controlled by standard pesticidal materials. Viruses not only cannot be seen by the unaided eye, but in some cases the electron microscope has not revealed their physical characteristics satisfactorily. This means that the problem of control is not an easy one to solve.

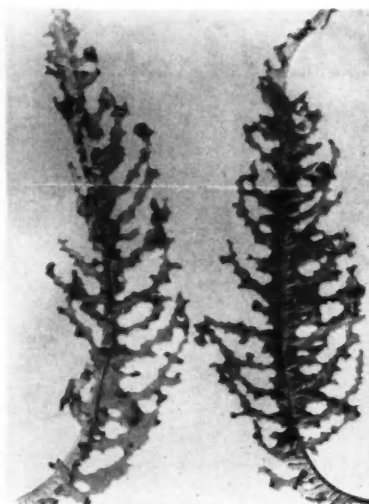
Viruses of plants are spread by sucking insects such as mosquitoes spread malaria among humans. While mosquitoes are controllable to some degree, and therefore the malaria, this practice of insect vector control has

not developed to the workable stage in orchards.

Elimination of wild chokecherries near orchards is theoretically a good way to reduce spread of the virus to orchard trees, but investigations have not indicated that such procedure is satisfactorily effective in practice. Nevertheless, it is not advisable to select a new orchard site near where a quantity of chokecherry grow.

Removal of branches of peach and cherry trees at the first sign of symptom development also has been tried, but results have not thus far justified the effort in most cases.

Results of the tree-by-tree survey conducted throughout Idaho during



Advanced symptoms of systemic arsenic injury in peach leaves. Unlike X-disease shot-holing, tattering does not cross over veins to any extent.

the past few years indicate that orchard spread can be reduced somewhat by diligent removal of whole trees at the first sign of infection. Results of such efforts have been better in the case of cherries than peaches.

In Idaho we recommend that the grower inspect his orchards frequently during every season and promptly destroy trees that show evidence of the virus. This would not be justified, from the growers' viewpoint, in those orchards where most of the trees are already infected, but in orchards where infection is not widespread this is the only means now known of keeping ahead of the diseases.

This will be much more of a continuous battle in peach orchards because the western X-disease appears to spread more rapidly than does little cherry. Because of this very fact, however, peach orchards where infected trees are not removed at the earliest possible time will soon be completely diseased and worthless. Many orchards in Idaho have conclusively demonstrated this.

THE END

Be Elephant-wise ... Fertilize with

ELEPHANT BRAND FERTILIZER

(STRAIGHT OR IN MIX)

for

ECONOMY THRU' HIGHER CONCENTRATION

LOWER PRODUCTION COSTS

CONSISTENTLY INCREASED YIELDS

MORE INCOME THRU' BIGGER BETTER CROPS

Manufactured by
The Consolidated Mining and Smelting Company
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IT PAYS TO FERTILIZE

Pacific

NEWS AND VIEWS

Underground pipe cools storage, warms surrounding soil

To create a fertile soil, one must recognize the various kinds of life in the soil, said Thomas L. Martin of Brigham Young University to Washington fruit growers. There are 15 million bacteria in each gram of soil. These bacteria multiply so rapidly that one organism will grow into two organisms in 20 minutes. They are so tiny that it takes 25,000 of them placed end to end to measure an inch. But they grow at such a rapid rate, one dividing into two every 20 minutes, that in 24 hours they will number 278 trillion organisms. In five days they would fill all the oceans of the earth a mile deep. The by-products of their activity, however, prevent them from multiplying at the maximum rate. As a result, only the fittest survive.

Washington cherry growers plan to put additional effort behind the selling of their crop this year. A 1954 cherry crop promotion costing \$70,000 is planned which will mean a \$3.50 per ton assessment, up \$1 from last season. In 1953 \$50,000 was set aside to promote cherries. Fred Westberg of the Washington Soft Fruit Commission will handle the promotion of the cherry crop.

Hall Scale

Hall scale is an insect that if allowed to spread could do a great deal of damage to fruit and nut trees of the U. S. The scale feeds on the tree, but the greatest injury can be to the fruit. Thus far Hall scale has been found only in California at Chico, Oroville, and Davis. Hall scale first appeared in this country back in 1934 when it was found near Chico. Attempts to eradicate it met with apparent success until the scale reappeared in 1940. Now it has been found that fumigation with hydrocyanic acid gas will eliminate the scale on infested varieties of peach, plum, prune, nectarine, almond. Treating equipment consists of plastic covered cloth tents that are relatively gas tight and large enough to encase infested trees.

Truman Nold of the National Apple Institute reports that California is showing an increase in plantings of Yellow Newtown, Delicious, and Rome Beauty apples. At the same time expect New Mexico to become a factor on the Los Angeles and Texas markets with many plantings of red strains of Delicious coming on. Many of the new orchards are at the 2,500-foot level, Nold reported.

Steel Squirrel

The steel squirrel speeds up pruning by getting you closer to your work, reports Lloyd Thielke, manager of the Valley View Orchards at Chelan, Wash. It gets you closer to your work by putting you up in the air where the limbs are, he said. There is no crawling around on ladders and you don't come in all tired out. He added that it also keeps you off the ground during snows. A half dozen of the steel squirrel units are now in operation in the north central Washington region.

New-Type Storage

A new type apple cold storage is being constructed at Orondo, Wash., in which the refrigerant will be cooled by means of pipes laid underground. This method allows refrigeration in areas where large amounts of water are not available. The heat in the cold storage will be picked up by the refrigerant and dissipated in the cold ground. A garden is planned to take advantage of the heat the underground system will give to the soil.

An interesting bulletin entitled, "On the Farm Refrigerated Fruit Storage," is available from Michigan State College, Agricultural Experiment Station, East Lansing, Mich. The bulletin concludes that first costs of Michigan farm storages range from approximately \$1.20 to \$2.40 per crate of capacity. Total annual operating costs range from approximately 20 to 35 cents per crate.

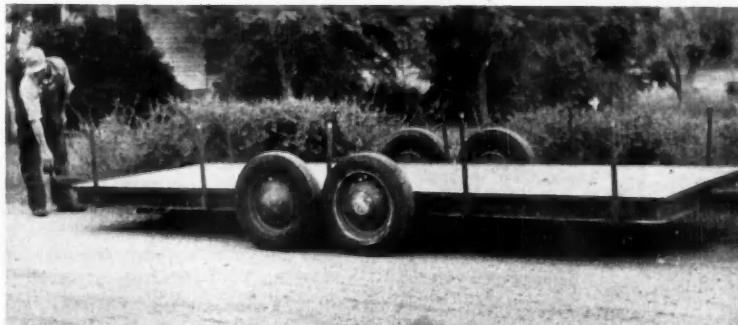
This year professional entomologists all over the country are commemorating the 100th birthday of their profession. On May 4, 1854, Dr. Asa Fitch was named entomologist for New York state at a \$1,000 a year salary, and on June 14, Townsend Glover was appointed entomologist in the U. S. Patent Office of the federal government. Today there are 4,500 professional entomologists banded together in their professional organization, the Entomological Society of America.

The A. C. Nielsen Research Company maintains records for the California Cling Peach Association and the California Pear Bargaining Association on how fast canned fruits are moving in the nation's markets. They have 180 field men who are checking food outlets each week, covering every county, every state, and all major cities in the country. They audit 1.31 per cent of all stores in the nation each week and estimate that they can measure the movement of canned fruits accurately to one or two per cent. Figures on the movement of canned fruits are important for growers to have in order to bargain intelligently with canners.

Good Control

In tests with streptomycin for fire blight control in California, streptomycin sprayed trees showed a remarkable protection from fire blight up to May 1. The streptomycin sprayed trees were compared with a comparable number of trees dusted with 20-80 copper-lime dust, the standard control for fire blight. Both the streptomycin and the copper-lime plots had only a trace of fire blight, but the unsprayed checks were heavily damaged by the disease. Observations throughout the season showed no visible injury on the pear foliage. Fruit from the copper-lime dusted plot was heavily russeted but from the streptomycin plot it was clean. Tests were conducted by Peter A. Ark who is professor of plant pathology, University of California at Berkeley.

DOUBLE-TONGUE TRAILER

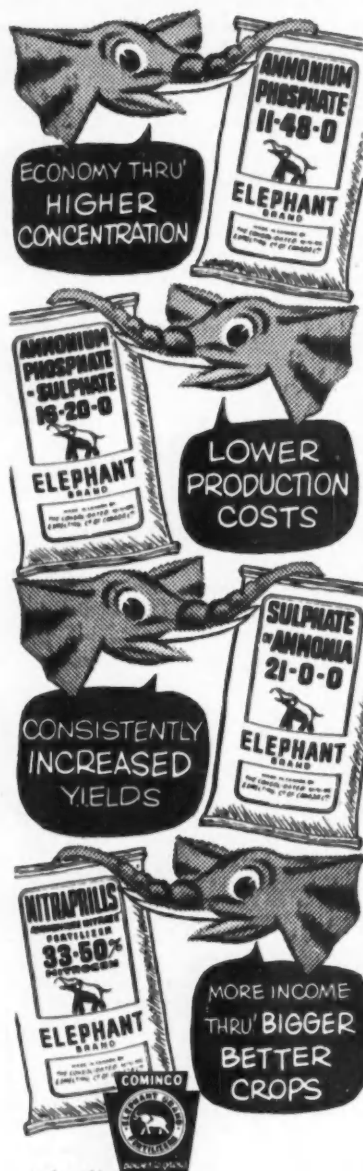


Trailers with tongues on each end are handy for Henry J. Newman and his neighbors in their orchards in Douglas County, Washington. They are particularly useful when rows are being opened up as the harvest starts. By then the orchard is usually tight with props and boxes and it's virtually impossible to turn a single-tongued trailer around in a row without knocking out props and injuring considerable fruit. But by unhooking the trailer, running the tractor around and hooking

it onto the other tongue, the trailer is ready to go back out without turning around. The double tongues also permit trailers to be hooked together in "trains" to speed the job of hauling fruit.

The trailers are 66 inches wide by 16 feet long and 10½ inches off the ground. They have four wheels—two in the middle of each side to balance them so they can be pulled with equal speed from either tongue. Capacity is 144 apple boxes each. —Richard Bell.

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IT PAYS TO FERTILIZE

GIANT STRAWBERRY

**A new everbearer in the Yakima
Valley produces five-inch berries**

A NEW strawberry appears to be on the way to final development on one of the steepest and rockiest small acreages in the Yakima Valley of Washington.

Overlooking the town of Selah, J. E. Southerland has one and one-half acres, not the kind of land that an agricultural experiment station would choose for its work, but the shallow soil, cared for properly, earns Mr. Southerland a living. Everbearing strawberries occupy most of the tilting ground, and his market is but a few blocks away in town.



Southerland mulches his new Super-Red everbearing variety with straw to prevent erosion.

By next year Mr. Southerland hopes to have perfected to his satisfaction an everbearing strawberry that meets his standards as to color, sweetness, flavor, and productivity. He has completed four years of experimenting to obtain his present results.

Mr. Southerland discovered several years ago that despite his sunny slope, the Rockhill variety did not thrive there. (Rockhill plants, incidentally, usually must be separated at the crown, although occasionally runners may develop.)

He sought to improve the Rockhill by crossing it with the Streamliner, another everbearing variety. This combination did not work out altogether satisfactorily, although the berries had size and looked good but they lacked inside color.

Also growing on the Southerland place was the Robinson variety which was declining in production. This variety possessed the desired color and Mr. Southerland decided to cross the two varieties.

"You know the old saw about the homeliest parents having beautiful

offspring," Mr. Southerland observed. "Well, that was the case here."

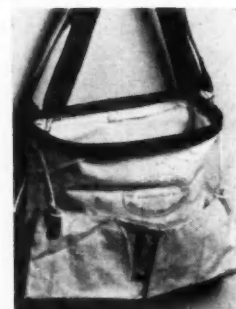
With its attractive color, the Robinson is a good berry and hard to beat, according to Mr. Southerland. For best Robinson production, plants must be thick, and soil type has much to do with quantity. Mr. Southerland prevents erosion by use of a heavy straw mulch. Irrigation is an absolute necessity by sprinkler.

Distinct Variety

The new berry, Super-Red, has proved to be a distinct variety, of the everbearing type. It throws out more runners than Streamliner, or about eight per plant during the season. The berries are giants, with many attaining five inches in circumference. The period from bloom to fruition is 30 days in summer and five to six weeks in the fall. Naturally, weather is a governing factor.

Mr. Southerland says that he is still testing the berry to discover any reversions to ancestry. However, he is fairly confident that the new variety will be stable and distinctive. The new plant is small and produces prolifically.

At present, Mr. Southerland is concentrating his efforts on the berry itself, and plants are still of secondary consideration.—William H. Wright.



RED APPLE FRUIT PICKING BAG

This Bag is designed to save fruit, holds one bushel and is comfortable on the picker. With its wide padded metal top rim, specially designed rope side fasteners, wide shoulder strap and spring tension back, this Bag far surpasses any bag on the market today. Sample Bag \$3.95 Postpaid. Send Dealer's name with order. We are interested in good dealers—several very profitable territories still available.

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Wenatchee, Washington

WESTERN SECTION AMERICAN FRUIT GROWER

HOW FILLER TREES AFFECT LIGHT INTENSITY

**Studies show how fruit development is hampered by
excess shading and crowding of permanent trees**

THE usefulness of filler and semi-permanent trees in an apple orchard long has been the subject of controversy. The chief mistake has been that such temporary trees have been left too long in the orchard, thus leading to crowding, excess shade, poor yield, size, and color on lower branches, poor growth of mulch crops, and other difficulties.

An orchard study made in 1953 by A. A. Piring and W. G. Brierley of the University of Minnesota department of horticulture shows to what extent 16-year-old filler trees affect light intensity in tree heads.

First of all, they point out that investigations carried on elsewhere have shown how greatly light intensities are reduced within the head of a tree. In full sunlight light intensity is rated at 13,000 foot-candles. At about 1,100 foot-candles supposedly all the sugars manufactured in the leaves are used by a tree in growth or other life processes, thus leaving no surplus for storage. This is known as the "Compensation Point." In many cases light intensities in the central and lower portions of a tree head are far below this point.

Light intensities are highest in mid-summer, with the strongest light at midday on the south side of a tree. Brightly lighted clouds may add materially to light intensities by reflection.

The studies of light intensities in the heads of representative permanent trees in both permanent and filler blocks were carried on in an experimental orchard of the Haralson variety at the Fruit Breeding Farm of the University of Minnesota in the summer of 1947, when the trees were 16 years old. Light intensities were recorded by a Weston Illuminometer at a uniform height of one foot from the ground.

Branches of Filler Trees Interlace

In the "Permanent Spacing" block, in which the trees were planted at the permanent distance of 35 feet, the space between the trees was wide so all the outer portions of these tree heads were exposed to full sunlight sometime during the day. The "Filler Block" trees, spaced only 17.5 feet apart, had crowded so much by the 16th year that their branches grew together or interlaced an average of two feet along the rows, and many trees interlaced as much as four feet.

In general there was little difference between trees in the "Permanent Spac-

ing" compared to "Fillers" relative to light intensities in the heads of the trees. In either case light intensities within the outer three or four feet of the heads fell from the 13,000 f-c of full sunlight to between 2,500 and 8,000 f-c, depending upon density of the heads. Variations were due to pruning, tree vigor, winter injury, or breakage. Under comparable conditions, light intensities in the "outer shell" of the heads averaged about 3,500 f-c.

In the inner central portions of the tree heads, light intensities dropped to 1,600 f-c or lower. In some cases intensities as low as 500 f-c were recorded.

In the heavy shade in the central portion of the heads close to the trunk, light intensities rarely were as high as 1,000 f-c and often fell to as low as 300 f-c.

The principal difference between trees in the "Filler Block" and those in the "Permanent Spacing Block" was the interlacing of branches of the filler trees. Light intensities throughout most of the heads of trees in the "Filler Block" ranged between 500 and 1,600 f-c. Thus the better lighted "outer shell" of the heads was materially reduced to the disadvantage of tree performance. In the "Permanent Space Block" all of the "outer shell" of the trees was exposed to full sunlight for at least part of the day.

Prune to Admit Light

The low light intensities in the lower portions of the tree heads appear to be closely associated with the development of "thin wood," poor bud formation, and with the poor size and color of the fruit produced in that portion.

Obviously, the investigators point out, it will be the best practice to prune out "thin wood" and in many cases to follow the old-time practice of pruning to open the heads somewhat so that light can penetrate deeper within the tree. In dense heads it may be desirable to open up three or four "lanes" into the center, thereby not only admitting more light but also making spraying and harvesting easier.

Some items other than light need also to be considered relative to the use of fillers, they state. Roots are known to spread several feet beyond the tips of the branches. Therefore, roots will crowd long before the branches interlace. When the roots are crowded there will be severe competition in the soil for water and mineral foods, to the detriment of the trees.

THE END

NINE OUNCES OF PREVENTION

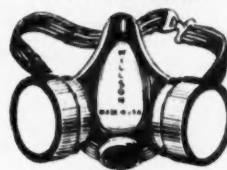
To keep you on the
SAFE SIDE

Toxic insecticides are only dangerous if users neglect to take proper precautions.

The U. S. D. A. and State Agricultural Experimental Stations have made studies of these insecticides and have determined the proper precautions to take. The manufacturers of these chemicals, too, recognize the need and have set up adequate precautions. All of these recommendations are yours for the asking. But—recommendations won't protect you unless you do something about it. A few ounces of prevention—through the use of Willson AgriSol® or Agri-Tepp® Respirators can keep you on the safe side.

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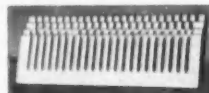
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- 1 Maple Brush, Straight Blades, set 1/8" (Mulch)
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- 3 Pine Board Butts, Serrated Blades, set 1/16" (Stable Bedding)
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When you own a Fitchburg Chipper, you benefit three ways. First, you can convert woodland thinnings into valuable wood chips for low-cost mulch, poultry litter and stable bedding. Second, at the same time you give new life to young trees—eliminate the fire hazard of dead brush, undergrowth and fallen limbs. Third, manured wood chips provide an excellent soil amendment, and handle well with a spreader.



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Excellent for brush.
Make ideal chips
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Produce chips ideal for
poultry litter, stable
bedding.

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Contains money-saving suggestions and details for using wood chips as mulch, poultry litter, stable bedding. Outlines ways to make extra money with a Fitchburg Chipper, gives technical data, diagrams, specifications, etc.



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A Custom-Made PEACH BUSINESS

Keeping roadside markets supplied is a job in itself for New England fruit grower S. Lothrop Davenport

By CHARLES L. STRATTON

FRUIT GROWER S. Lothrop Davenport of Worcester County, North Grafton, Mass., is practically in the same class as the well-known 57, as he's a peach grower with 54 listed varieties. The list includes such varieties as Cardinal, and Tulip, Fowler and Good Cheer, and many of the more common white- and yellow-fleshed varieties.

Davenport is apt to produce some astonishing results in this large fruit section. In 1952 when his crop was light he picked mammoth peaches weighing one and one-half pounds apiece. Last year's heavy crop produced a sizable number of Golden Jubilees weighing one-half pound each. These are generally held for customers who prefer this particular size.

Davenport's 54 varieties is an answer to the peach problem in his section. His business is retailing and selling to roadside stands. In order to keep these stands supplied throughout the season he must produce a continuous crop.

Previously, customers had been switching back and forth from southern fruit to his peaches, then back again, since he couldn't bridge the gap between his varieties. These gaps were filled with peaches from outside sources. But that didn't help Davenport, and he decided to do something about it.

A Continuous Crop

His answer is his seven-acre peach orchard with enough varieties to give him a continuous crop from July 29 to September 20. Last year he had a bumper crop and harvested as many as 800 to 1,000 16-quart baskets to the acre in some sections.

Davenport claims he never saw a fuller set than in the spring of 1953. Although he is experimenting and making progress with chemical thinning, it is difficult to tell the proper sprays to use as he has so many varieties. He has also done a tremendous amount of hand thinning in the past in order to get large peaches. This past winter he did a lot of pruning with shears in order to cut out the small fruit spurs and save on later hand thinning.

Davenport likes to start his spray program early. As muddy conditions often make it difficult to enter an or-



Golden Jubilee peaches weighing one-half pound each make an attractive display in the special box which Davenport designed for his own use.

chard in the spring, he puts on a straight lime sulfur spray for leaf curl in late fall after the trees have become dormant. His second spray for insects and brown rot is applied in the spring after blossoms fall. A regular spray schedule of eight sprays follows.

Cultivation is carried out in the orchard whenever necessary. Barley or buckwheat is generally seeded in the peach orchard in the fall.

A Packing Box of His Own Design

Until recently, an all-around packing box for peaches as well as grapes and other small fruits has been somewhat of a problem with Davenport. Through a series of experimental boxes and trials he finally designed his present box that meets all his requirements. Measuring 34 inches long, 10 3/4 inches wide, and 5 inches high, it will take five two-quart baskets filled with either grapes or peaches. Boxes can be stacked without injuring the fruit. Grapes can be picked in this new box, stored, and shipped in it.

An especially attractive display is a dozen or more of these boxes filled with peaches and set on end outside a roadside stand. This has proved to be an eye-appealing sales method at a number of stands.

Davenport packs his fruit and stores it in a cold storage plant on his farm. He has cut his apple production to half a dozen acres and has increased his peach acreage as well as small fruits like raspberries, gooseberries, and blackberries. He handles retail sales from his cold storage plant throughout the season, and on Saturdays and Sundays throughout the year.

THE END

"Protect your fruit like an envelope"

**GET BETTER
COVER SPRAYS
EVERY
TIME!**

...use O.B.



**Here's the RIGHT product
for EVERY pest problem!**

For Scab:

- Puratized Apple Spray and Puratized Agricultural Spray (organic mercury fungicides)
- Ferbam Spray Powder
- Micro Britemec Sulfur

For Mites:

- 15% Aramite Spray Powder
- Aramite EM-2 Emulsifiable Concentrate
- Malathion 50% Emulsifiable Concentrate
- Malathion 25% Spray Powder
- Genithion* P-15 Spray Powder (contains 15% Parathion)
- Genite* 883 Spray Powder (p-chlorophenyl p-chlorobenzene 50%)

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- 50% Methoxychlor Spray Powder
- Dieldrin EM 1 1/2 Emulsifiable Concentrate (up to first cover only)
- 50% Dieldrin Spray Powder (up to first cover only)
- Genithion* P-15 Spray Powder
- Lead Arsenate, Standard and Astringent
- Malathion 50% Emulsifiable Concentrate
- Malathion 25% Spray Powder

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Moth:**

- Genitox* S-50 and S-75 Spray Powders (contains 50% and 75% DDT)
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- Malathion 25% Spray Powder

**For Red
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Leaf Roller:**

- 50% TDE Spray Powder
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- Genithion* P-15 Spray Powder
- Malathion 50% Emulsifiable Concentrate
- Malathion 25% Spray Powder

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- Nicotine Sulfate Solutions
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HOW TO APPLY SPRAYS EFFECTIVELY

1. Use equipment suited to the job.

Equipment should be right for the job you want to do. For example, when spraying mature trees you need equipment that develops sufficient pressure (or air velocity) and discharge to get spray on the tops of the trees and through to the center as well.

2. Keep your equipment in perfect working order.

To get high-grade performance from your equipment, you must keep it in top condition. Replace worn parts to prevent leakage and loss of pressure or velocity. Check your nozzle size and arrangement to insure proper drop-let size and spray pattern.

3. Use equipment correctly.

The best of equipment kept in perfect working order will do a poor spraying job if you use it incorrectly. In driving your spray rig through the orchard, use a speedometer to gauge your speed. Otherwise, you may get too little or too much spray mixture on your trees. Keep equipment close enough to trees to insure good coverage. Operate in favorable weather whenever possible.

These are the basic "how to" rules for getting good spray results. Following them will pay you off in handsome savings of time, labor and money, too. Particularly if you use the *Orchard Brand Spray Materials* listed at left. There's one for every pest problem. Fifty years of experience, constant research and high manufacturing standards make them your best buy.

**See Your Orchard Brand
Dealer Soon.**

*Reg. U.S. Pat. Off.



... to produce their maximum

With overall good orchard management . . . a regular program of cultivation, pruning, fertilization, dusting and spraying . . . your trees are capable of yielding large crops of highly profitable fruit. When any one of these factors is seriously neglected, it can mean the difference between profit and loss.

Consider the insect and disease problem alone. Infestations or any of several varieties of disease can ruin your crop. Yet these all can be controlled by a planned dust and spray program. Whatever the problem, there's a skillfully formulated Niagara material available, the effectiveness of which has been thoroughly proven by extensive laboratory and field tests.

Your Niagara field man is trained to give you professional advice on the protection you need. It's his job to help you earn greater profits. Call him in now, or write us, and he will see you.

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YEARS OF SERVICE

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MATERIALS FOR FRUIT GROWERS

KOLOFOG* KOLODUST* NIATOX (DDT) KOLOSPRAY*
BHC PHOSKIL† (Parathion) LEAD ARSENATE NIAGARAMITE†

The above insecticides and fungicides are available
in various combinations for specific control problems.

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Niagara Chemical Division

FOOD MACHINERY AND CHEMICAL CORPORATION

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Wyoming, Ill., New Orleans, La., Ayer, Mass., Greenville, Miss., Harlingen, Tex.,
Pecos, Tex., Yakima, Wash., Subsidiary: Pine Bluff Chemical Co., Pine Bluff, Ark.
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SAFETY IN SPRAYING

**Don't take chances. Guard
against unnecessary exposure**

NEWER insecticides, such as parathion, deserve a lot of respect in handling. These potent new materials are "chemical cousins," for the most part, of deadly nerve gases developed by the Germans in World War II and are usually referred to as organic phosphorus insecticides. If used carelessly without regard to manufacturers' warnings and instructions, they may cause injury or death to the user.

Some of the protective equipment needed for safe use of these pesticides includes rubber coats, gloves, boots, hats, and approved-type masks or respirators.

You must avoid 1) breathing in the dust, vapor, or spray mist, and 2) skin contact.

Protective clothing should be washed with soap and warm water after each use and carefully inspected from time to time to detect any tears or cuts that might permit "infiltration."

Only those types of respirators approved by the USDA for the specific kind of pesticide should be worn. Further, these require and deserve proper care. Filters and cartridges should be changed frequently in accordance with the recommendations of the manufacturer.

Use Plenty of Soap

Remember always to wash the hands, arms, and face immediately after leaving areas where insecticides are applied. In addition, take a bath or shower,



Absorbed repeatedly through the skin or inhaled, even in small amounts, organic phosphorus insecticides may progressively increase susceptibility of hands to poisoning without giving rise to symptoms. This fruit spray operator wears rubber clothing, including gloves, cap, coat, boots, and an approved canister-type gas mask, while mixing a parathion solution in open air.

AMERICAN FRUIT GROWER

with plenty of soap, after mixing or applying insecticide sprays or dusts or after repeated handlings.

Do not permit food or feed products in the area where insecticides are stored or used. Never re-use insecticide containers. Burn or destroy them. Sweep up spillage and bury it, and clean up spillage area with strong lye solution.

Use a knife to open bags. Do not tear off the tops as this tends to "billow" or scatter the powder. In emptying a bag, place it well down in the hopper

WORK on the possibility of injury to fruitmen by organic phosphorus sprays is being carried out at the U. S. Public Health Service installation located at the Tree Fruit Experiment Station, Wenatchee, Wash., in charge of Dr. William M. Upholt. Research is also being conducted with citrus growers in southern California.

Last season's results in Washington state show that a man who sprays one acre with hand equipment is exposed by skin absorption to 10 times as much parathion as the man who sprays one acre with air-blast equipment.

However, if both men spray continuously for eight hours the man using the air-blast sprayer is apt to be exposed to twice as much parathion as the man using a high pressure hand sprayer. The reason for this is that the operator of air-blast equipment mixes and loads his own machine, and that is where he encounters heaviest concentrations. It is conventional in Washington that the sprayman using high pressure hand equipment does not do his own mixing.

Continued use of respirators is recommended, and the importance of protective clothing to avoid skin absorption is emphasized. Even though a man may get by for a long time without feeling any ill effects, he is working in a borderline situation and a small accident may be enough to make him seriously ill.

before pouring. Keep an eye on the wind to prevent it blowing the powder or dust onto nearby people, livestock, or edible crops.

If emulsifiable liquid is used, keep another danger in mind—it may be flammable. Keep container closed and away from heat or flame.

Finally, never use organic phosphate insecticides in the house or on warm-blooded animals. **THE END**

Fruit Production at a Glance

	Average 1942-51	1952	USDA Apr. 1, Est. 1953
Oranges			
Calif., all	46,265	45,530	35,100
Navel & Misc.	16,841	16,630	14,400
Valencias	29,424	28,900	20,700
Florida, all	55,080	72,200	86,200
Temples	924*	1,700	2,200
Early & Mid-season	29,231	40,600	48,000
Valencias	25,110	29,900	36,000
Other States	4,665	1,950	2,100
Total Early & Midseason	49,746	60,080	65,925
Total Valencias	56,264	59,600	57,475
Tangerines	4,340	4,900	5,200
Grapefruit	51,246	38,360	44,420
Lemons	12,722	12,590	13,700

*Short-time average.

PUBLIC ACCEPTS BUFFALO TURBINE

As Modern Equipment for Concentrate Spraying and Dusting



Summer and winter meetings of the horticultural societies have again stressed the advantages of concentrate spraying. The Buffalo Turbine Agricultural Equipment Company, who is the pioneer in concentrate and air blast spraying, has spent nine years in perfecting their sprayer-duster. The Buffalo Turbine is truly an all-purpose unit. It will distribute dust or liquid insecticides and fungicides and will apply both at the same time or separately. It will give you more rapid coverage with less material. The axial-flow blower sets up an air turbulence which atomizes spray or dust, giving greater penetration.

YOU CAN SAVE MONEY WITH A BUFFALO TURBINE

- YOU SAVE ON INITIAL COST
- YOU SAVE ON MATERIAL
- YOU SAVE ON LABOR
- YOU SAVE ON MOTIVE POWER, FOR A SMALL TRACTOR WILL HANDLE THE BUFFALO TURBINE

A South Carolina tobacco grower reports that he replaced 19 conventional sprayers and dusters with one Buffalo Turbine treating over 1000 acres and harvested an almost 100% insect- and fungus-free crop. (Name upon request.)

There is a Buffalo Turbine that fits your needs. Fill out the coupon and let us send you additional facts about this modern applicator.

Prices start at less than \$1000.00

Available in the following models:

- JEEP POWER TAKE OFF
- SKID MOUNTED FOR TRUCKS
- TRAILER MOUNTED
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We must treat the new orchard chemicals with a healthy respect

SEVERAL regrettable accidents have occurred this spring involving agricultural spray chemicals, especially certain of the highly potent insecticides and fungicides. Fortunately, most of the accidents have not been serious. Most of them are in the nature of what might have happened "if!"

For example, Nick Fox, prominent fruit grower of Shelby, Mich., tells of a close call with nicotine sulfate. As nearly as he can put the story together, he put some nicotine sulfate into a "coke" bottle, put the top back on, and carried it home to his wife to use on her flowers. Somehow, the bottle found its way into

HANDY ANDY



Have you had trouble getting that orchard disc weighted just right? Here's a simple way to end your worries as was done on the W. W. Moore farm, Sandy Springs, Md. Cut an old steel drum in two and bolt on the disc as shown. Toss in rocks until the disc cuts the right depth. Simple, isn't it?—Rob Aiken

the refrigerator. Fortunately for Mr. Fox, he got only a taste and was only violently nauseated, but it could have been worse. Nicotine sulfate is a deadly poison.

Then there is the case of the broken hose that drenched the operator with TEPP—fortunately no serious effect; and the man who found that fumes from bags of insecticide in the back of his car were enough to make him ill for several days.

The most tragic story is that of six-year-old Michael Ogden, son of Mr. and Mrs. George F. Ogden, Jr., in the Odell fruit growing district of Oregon. It seems that the lad was playing in a neighbor's yard. He found a bottle in a carton, the bottle broke, and his legs

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were drenched with the material. Unfortunately, the bottle contained TEPP, one of the most violent of insecticides and commonly used at the rate of one-half pint per 100 gallons of water. The material entered through the skin and affected the nervous system and his breathing. After several days of heroic treatment he died without regaining consciousness.

These instances show how easy it is for something really serious to happen when one is working with some of the new chemicals. We know of lead poisoning. We have seen the sulfur duster go up in flames. We know that nicotine sulfate will sicken anyone who gets too many whiffs. Somehow we have adjusted and "gotten by."

But now with all of these new materials at hand, many of which we do not fully appreciate, we need to be exceedingly cautious. The markings on the package are not enough. The materials must be kept under lock and key at all times. It would not take much to alarm the general public and cause the outlawing of some of our most useful chemicals.

There is no reason for undo alarm. We are not frightened over the dynamite box and the shotgun. But we have learned to treat both with healthy respect. Let's do the same with the new chemicals and adopt the attitude of those who handle guns, namely, "the gun is always loaded."

REDUCING FROST INJURY

ALBERT and W. Lee Allen, prominent fruit growers of Salisbury, Md., have found a way to reduce and often prevent frost damage to their peach blossoms.

They found the secret in the cultural practices in their orchard. They simply reversed the customary practice of cultivating in summer and leaving the orchard in a cover over winter. A few years ago they started letting grass and weeds grow in the orchard through the summer and then cultivating during winter and spring months, mostly in the early spring.

Previous to adopting this practice the Allens had difficulty in getting a peach crop started because of frost damage and often lost full crops in sections of the orchard. Now they have little or no trouble pulling blossoms through the early spring critical periods. Under the present cultural program the peach trees bloom a few days later than under the former program, hence escape the frost dangers. During summer months weed growth is held down somewhat by the use of a culticutter, then in the late fall it is disced thoroughly.

Eldon S. Banta

MAY, 1954



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Choosing an APPLE DISEASE PROGRAM

Tests show effect on yield, tree vigor, size, and quality of fruit

THE outstanding conclusion in completing a five-year program testing apple disease control programs is that when scab control alone is measured, the difference between various fungicides is small. In five years of testing when all scab applications were well timed, the poorest treatment averaged only 3.1 per cent fruit scab.

Evaluation of an apple fungicide for a well-managed orchard, therefore, depends on factors other than scab control, reports D. H. Palmer of the New York Agricultural Experiment Station. Where other diseases are a problem they must be taken into account.

It is also important to judge the effect of various chemicals on fruit size and fruit color, as well as on the progressive health and vigor of the trees from year to year as shown by spray injury, terminal growth, fruit spur development, yearly fruit set, total yields, size of apples, and rate of maturity. Total cost is also critical.

Long-Term Tests

Results of long-term orchard tests in the Hudson Valley of New York indicate that many variables affect results for the first few seasons. This is confirmed by the five-year program completed in 1953 in the orchard of Fred Dubois, New Paltz, N. Y., and two separate 10-year programs in Hudson Valley orchards.

A different type of information was sought in each of these programs, and each was carried out in a number of different orchards. The first 10-year program was essentially a comparison of 13 different fungicide treatments for control of scab and rust diseases which normally occur in varying proportions in the Hudson Valley every year. The rust diseases included cedar-apple rust, hawthorn rust, and quince rust.

The second 10-year program began as a nitrogen fertilization study with secondary comparisons between sulfur and Fermate fungicide. This proved to be an ideal example of the effect of fungicide treatment, apart from disease control, on the long-term vigor and productivity of the orchard.

Five-Year Program

The third program, lasting five years, has been a comparison of eight different fungicidal treatments for scab control, with comparisons of some of the other effects of these different treatments.

The eight different treatments were as follows (one fungicide used throughout the schedule except in treatments one, two, and three):

- 1) Tag 331 fungicide in early applications, followed by Fermate ferbam fungicide in cover sprays.
- 2) Phygon dichlone fungicide in early applications followed by Fermate in cover sprays.
- 3) Flotation sulfur in early applications followed by Fermate in cover sprays.
- 4) Fermate
- 5) Crag 341 glyodin fungicide
- 6) Flotation sulfur
- 7) Micronized sulfur and lime
- 8) Micronized sulfur

Apple scab control has been very good with all treatments during the five-year period. Good timing of applications is mainly responsible for this result. Even the poorest treatment averaged only 3.1 per cent fruit scab during the five years.

The five-year average fruit size for each treatment ranged from 125 to 141 apples per box. Treatments that produced the best size also produced the largest proportion of fancy-colored apples and showed the smallest proportion of fruit too green for No. 1 grade.

Three factors causing loss of No. 1 grade were checked individually and in total for each treatment. Annual average losses due to poor color ranged from three to 10 per cent. Scab losses ranged from one to three per cent, and spray injury caused an average annual loss of one to four per cent in the different treatments. Total loss of No. 1 grade in each of the eight treatments showed an average annual range of five to 17 per cent.

Cost of Treatment

The cost of the different fungicide treatments varied from a minimum of \$17.25 per acre per year (five cents per box of No. 1 fruit) to a maximum of \$53.50 per year, or 12 cents per box of No. 1 fruit.

The treatment which produced the greatest annual average yield cost \$38.75 per acre per year or eight cents per box of No. 1 fruit. This yield was 501 boxes of No. 1 fruit per acre, while the lowest average yield was 338 boxes per acre. In other words, a fungicide investment of three cents per box produced an additional yield of 163 boxes of No. 1 fruit.

Yield per tree ranged from a five-year average of 88 boxes per tree down to 64 boxes per tree. Of more interest, perhaps is the average total yield of No. 1 apples per acre, which ranged from the top yield of 2,508 boxes per acre for five years down to 1,690 boxes. THE END

MAY, 1954

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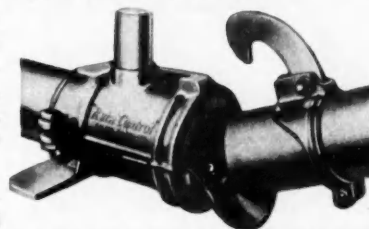
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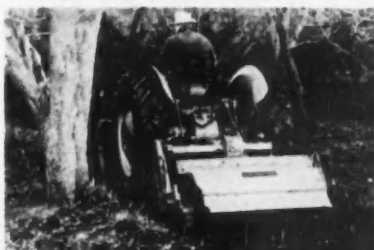
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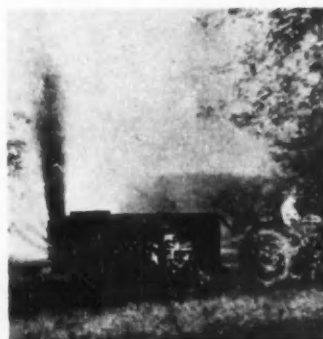
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It is said that Isaac Newton while sitting under an apple tree was struck on the head by a falling apple. Thus he conceived the great truth of his Law of Gravitation.

A FORUM ON THE HUMAN SIDE OF ORCHARDING

Led by Henry Bailey Stevens

Why the Blossom Festival?

"I WISH you'd discuss the subject of Blossom Festivals," writes Kate Masters from Charlottesville, Va. "My husband and I think that our festival is wonderful, but one of our neighbor fruit growers scoffs at it. Says he never knew anybody to buy an apple in the fall just because there'd been a to-do over spring bloom. Pokes fun at it as a cut-and-dried affair. Every year a pretty girl is picked out as Queen; the band plays and there's a big ball; the dignitaries are all there, and the blossoms; but what will that mean next fall, he wants to know? He says it's just a Big Show! We don't know how best to answer him, and there seems to be enough in his argument to make us feel dissatisfied."

Glory be, Mrs. Masters! Your suggestion is the very thing for the month of May, when from the Shenandoah to the Souhegan and from the Wenatchee to the Saco fruit trees will be breaking out into their billions of blossoms.

Let's agree with your friend at once that it's a Big Show. But who's putting it on? Not the few devoted growers who here and there have enough spirit to let the public in on it through festivals, blossom tours, and parades. The real show is staged by the trees themselves, and behind them that mysterious Life Source which all people worship at Easter and the spring equinox. What a Show it is! Even we, who become accustomed to it and treat it as a matter of course, cannot escape its beauty. Our handful of festivals do not begin to do justice to the pageantry nor to the Playwright who moved the performance of both the trees and the men who planted them. We have a part to play. We are the custodians of this treasure, and most of us are glad to share it freely.

As to whether the public will buy

apples in the fall, this surely is not the time to inquire. The blossoming is an event. Do we not celebrate weddings as well as birthdays? the Promise as well as the Fulfillment? The band plays. The petals fall. And the fruit sets. We take the days as they come, and enjoy them. A good grower is as proud of his orchard when it is in bloom as when it is in fruit.

Has the Climax Been Left out?

NEVERTHELESS, a fruit-blossom festival is not just a flower show like the rose tournament or the cherry blossom viewing of Japan, where a non-fruited cherry is the center of attraction. We are engaged in producing an important segment of the world's food supply, and that stake belongs naturally in the picture. It is at this point that I think we can well make a constructive criticism. Wonderful as the blossom festivals are—and I cherish their development as one of the cultural accomplishments of this century—most of them do fall short in their continuity.

The historic spring festival was more than a celebration. It was a prayer. The real climax was a supplication to the Life Source, an all-important entreaty that the promise of the blossoms be fulfilled in the fruit. The grower of ancient times knew well that hazards lurked in the weeks ahead beyond petal-fall. Even though he lacked the detailed pictures which we have today of the ways in which weather, disease, and insect pests can mess up the crop, his fear was perhaps greater. He was relatively helpless before these calamities.

Today we are in possession of great powers and practices of which our forefathers hardly dreamed. But who among us is so all-wise and so all-powerful that he need feel no concern about

the fulfillment of harvest? Who would find it amiss to pray?

I would give up none of the present features of our festivals. I would keep the music and the dance, the selection of a Queen—and of a King too, for that matter. But I would add another and perhaps a greater Act, on which the final emphasis would be placed. I would dramatize the prayer.

The Orchard as a Temple AFTER the festivities of the night, let the procession, led by its royalty, go at dawn to the church or even to that open-air temple of ancient times, the orchard itself. There let a high priest picture the dangers that lie ahead for the crop—the scab spores, the curculio, the maggot fly, the menace of hailstorm, the withering of drought.

And let the participants on their knees pray that these dangers may be averted. Let the growers pledge that to the best of their abilities they will use these wonderful new powers which science has put into our hands to bring about the clean and bountiful harvest.

Religious authorities would be amazed, I predict, at the rich new lore opened up to them by a development of this sort; for it is only within the last century that Man has learned how to control the "evils" of the plant world, those blights that have dogged Adam since the day he left the Garden of Eden. Where else will we find such a degree of perfection as has been made possible by the new techniques of handling orchard crops? If only we could protect the mind of man as successfully! The symbolism runs deep, even to the associations of sulfur and purgatory.

At any rate a climax of a religious sort would put the emphasis back to the original base of the Festival. It would acquaint our public with new insights into the difficulties that growers have to face and overcome. It would add some suspense to the interim between bloom and fruit, going far to dispel that "cut-and-dried" effect. And it might help to steel growers themselves for the tasks that lie ahead.

Object of the Column THE object of this column, as we stated last month, is to discuss fruit cultural subjects. Festivals, poetry, art, religion are all grist to this mill. We believe that the people who cultivate the soil are the guardians of this heritage. If you agree, let us hear from you. THE END

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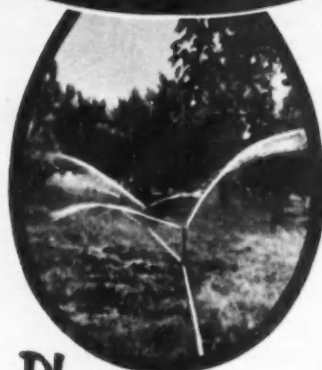
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*The***PHYLLOXERA MENACE***in Vineyards***A grape specialist from Europe
asks some significant questions****By KONSTANTIN FRANK**

The author, Dr. Konstantin Frank, has had much training and wide experience in vineyard operations near the Black Sea before coming to this country. He believes that phylloxera or root louse is a real problem in vineyards of the Great Lakes region. His opinions are the views of a specialist competent to speak on this subject.—Ed.

DURING the growing seasons of 1952-1953 I had an opportunity to observe New York and Pennsylvania vineyards. These observations have been made with a background of 30 years of research in the vineyards of Europe where I witnessed the decline of vinifera grape and later of hybrids. These declines have been due to phylloxera infestations which ruined the vineyards of Europe. At present the vineyards have been restored by the planting of grafted vines.

My first interest was in the vigor and productiveness of the New York vineyards, which are all grown on their own roots. Census data for more than 15 years show an average yield of 1.4 tons per acre per year. A trip through the Finger Lakes and Chautauqua County grape areas will show that many vineyards are low in vigor. Inspection of the roots of major varieties bears evidences of phylloxera injuries.

Weak Vines

This association of weak vines and phylloxerated roots raises the question of the importance of phylloxera in eastern vineyards. According to the New York State Department of Agriculture and Markets, Bureau of Statistics, of the 17,047 acres of commercial vineyards in the Chautauqua-Erie area in 1950, 1,546 acres have since been abandoned. We determined that most new roots were attacked by phylloxera and were injured by formations of galls and decay of roots. Some vines were so weakened that they could not develop new roots.

Attempts to increase productiveness by overdoses of fertilizer or by frequent cultivations do not always give good results because the vines with killed roots cannot make use of the fertilizer.

The only way to solve this problem is by planting vines which have been grafted on phylloxera-resistant root-

stocks. And I will here emphasize the importance of cold-resistant and early-maturing American rootstocks.

Elmer Snyder of California has records which show that 48 American grape varieties grafted on various phylloxera-resistant rootstocks were growing very well after 36 years. The vines which were planted in 1912 produced in 1948 as follows: Concord on Rupestris St. George—18 pounds per vine; Catawba on Solonis x Othello 1613—20 pounds per vine; Niagara on Mourvedre x Rupestris 1202—25 pounds per vine; and Iona on Rupestris x Othello—19 pounds per vine.

Also, experiments by Nelson Shaulis at Cornell show increasing Concord yields up to 70 per cent by grafting on several rootstocks.

It seems likely that vineyards in the East that suffer from phylloxera may have to be planted to grafted stock, the same as in Europe or in California. The selection of rootstocks is very important in the East, particularly for the Concord and Catawba varieties since these varieties are late maturing in this grape region of short growing seasons.

Concord Matures Too Late

According to Gladwin, buds of Concord did not reach complete ripeness and maturity in Fredonia, N. Y., in 1909, 1912, and 1915. Therefore, the crop of Concord was very light immediately following each of these years. Professor A. P. French, head of the pomology division, University of Massachusetts, reported at the 35th annual meeting of the New York State Fruit Testing Association at Geneva on September 17, 1953, that Concord cannot be recommended for Massachusetts (Concord's place of origin) because it is too delayed in maturity.

Doubtless the rootstocks Riparia Gloire, Rupestris du Lot, Riparia x Rupestris 3306, 3309, 101-14, and many others used in southern Europe and California are very good for those regions, but they are not the best for northern Europe where climatic conditions are similar to those in eastern United States. We need in eastern United States a rootstock which is not only phylloxera resistant, but is also resistant to cold, is adapted to our soil conditions, and is early maturing.

According to the experience in Europe, pure Rupestris as well as all of

the Rupestris hybrids, in comparison to pure Riparia rootstocks, delay the maturity of European grapes eight to 10 days.

The rootstock Rupestris du Lot, according to the European investigators, shows only slight cold resistance in the Ukraine and North Caucasus and it therefore was discarded. It is a very good rootstock only in the Crimea and in warmer regions of the Caucasus. In my experiment in 1939-40, 80 per cent of the vines grafted on this rootstock were killed in an area of 60 acres. The eyes and wood of many European varieties grafted on this rootstock withstood the cold of 1939-40 and the vines started growth in the spring of 1940 but the roots were killed completely and the vines died during the first two weeks of the spring.

Hardy, Early Maturing Stock

Why should Riparia Gloire or Rupestris du Lot be planted in the East and not Riparia Geneva or Riparia Fredonia that were selected by nature for climatic and soil conditions in that area? Riparia is the hardest of American rootstocks and favors early maturity.

The Riparia from the regions of Quebec, Canada, is selected by nature for still colder climatic conditions and a much shorter growing season. Therefore, it must be more cold-resistant and the yield of grafted varieties on Riparia of Quebec must be still earlier than that on Riparia Geneva, Riparia Fredonia, or Riparia Gloire. Obviously, the Riparias of the United States or the Riparia of Quebec must also be selected because they are very variable.

My 1952-53 experiments show good adaptability of Riparia Geneva to the Concord. This stock and scion grew well together and made vigorous growth.

It is hoped that this discussion will stimulate interest and research on this question.

THE END



This lightweight wooden ramp, designed by Platt Brothers, Milford, Conn., is convenient for pruning, thinning, and climbing to the center of trees.—A. C. Bobb

MAY, 1954

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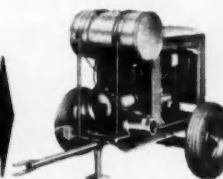
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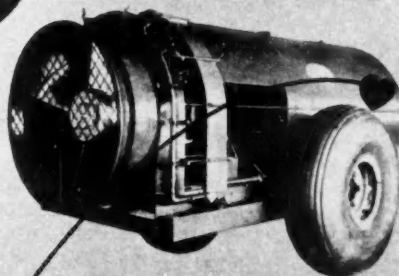
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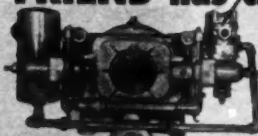


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A VISIT TO FRUIT ACRES

(Continued from page 13)

agement produced excellent vine growth and some very good yields of grapes last fall.

The change in the Phillips' fertilization program might have been influenced some by recent work of Dr. H. K. Fleming at the Field Research Laboratory. According to his tests, nitrogen applications above 20 pounds per acre and potash above 50 pounds per acre gave no significant increases in vine growth or grape yield. These tests were conducted in a young vineyard on Chenango gravelly sandy loam, much like the soil on Fruit Acres farm. However, under other soil conditions different results could have been obtained. The Phillips seem to be profiting from this bit of study, since they are producing a fine grape crop with less total fertilizer.

Balanced Pruning

Pruning is done according to the umbrella system. Balanced pruning is followed, too. John will weigh the prunings from a vine two or three times a day to check himself on how well he is following the system. The job is started as a rule in January and winds up in March, just before it's time to start plowing. Prunings are pushed out of the vineyard with a brush rake and burned.

The Phillips are interested in the new type of brush choppers being used for chopping up the prunings and leaving in the vineyard. As yet they have not come across the particular one that meets all their requirements. Next year, however, they plan to try one of the new tools.

Pest control is a much simpler job in this area than it is in some others. On their light Chenango soils, where most of their vineyards are located, the Phillips make only two spray applications. The first goes on just before bloom, using two pounds DDT and two pounds Fermate per 100 gallons. The second is applied when the young grapes just begin to touch each other, using two pounds DDT and 4-4-100 Bordeaux, or a fixed copper. Only on the heavier soils where black rot is serious are more sprays needed. For this Bordeaux or a fixed copper is used, according to the severity of black rot.

The Phillips are aware of the fact that the less Bordeaux used, the better the growth of the vines. They know, too, that the later the Bordeaux is applied the less injury will develop. Tests at the Field Research Laboratory show that a heavy Bordeaux spray schedule will reduce the size of individual berries and will lower yields from one to two tons per acre as compared with Fermate and fixed copper.

By checking pruning weights on vines under different spray programs, James

A. Cox and H. K. Fleming at the laboratory found that Bordeaux sprays reduce the amount of prunings per vine as much as .8 of a pound. This means less growth was made. The Phillips are folks who like to find out these new ideas and apply them when possible.

Nine Tons of Grapes Per Acre

The harvest season is, naturally enough, the pay-off. That is when the Phillips find out how well they have followed in practice what they have



A single cane is left after first year's growth and tied to both wires. Phillips follow this practice to get heavy yields from young vineyard.

learned. Even though last season was not one of the best growing years, Fruit Acres vineyards came through with an average yield in excess of four tons per acre. Some parts of the vineyard yielded up to eight and nine tons per acre. They can figure this pretty closely because if a vine will pick a box of grapes, which is roughly 30 pounds, the yield will be eight or nine tons per acre.

Last fall harvest started the last week of September and wound up the last week of October, completing one of the best harvest seasons in a long while. The entire crop was harvested without any delays due to rainy weather. Between 20 and 30 pickers were employed for the season and the pay was at the rate of 15 cents per box.

Thus we complete the story of how a Lake Erie vineyard is handled through the season and through the years. Fruit Acres is truly a Lake Erie vineyard for you can stand on a bluff anywhere along it and see the lake only a mile in the distance. It is the tempering effect of the lake breezes and the deep, well-drained soils that make this one of the best vineyard sites in eastern America.

THE END

HISTORY OF HORTICULTURE

Paul H. Shepard Wilder Award Winner By GUY TRAIL

THE Wilder medal, which was awarded this year to Paul H. Shepard, director of the Missouri State Fruit Experiment Station, by the American Pomological Society points up the wide diversity of his lifelong contributions to horticulture.

During the 20 years he has been at the helm of the station at Mountain Grove, Mo., in the heart of the Ozarks, he has created, named, and introduced seven new apples, seven new peaches, 10 new plums, and 12 new grapes. In his varietal testing, which has a regional impact in popularizing improved sorts, he will have each year up to 300 varieties of apples, 150 of peaches, 90 of plums, 26 of pears, and 400 of grapes under critical observation.

It is with grapes, however, that the Wilder award winner is most widely acclaimed by his own Missouri fruit growers. Grapes are a "natural" in the three-state Ozark region of Missouri, Arkansas, and Oklahoma. As far back as 1870, Missouri ranked third in wine production and acre yield.

In his hybridizing work with grapes, Director Shepard has a vineyard of vinifera or European-type grapes which he buries underground in winter to prevent winterkill. He merely bends the vines to the earth in late fall and covers the entire vine with four inches of soil.

Many Hardy Species

National recognition has come to Mr. Shepard for his work in utilizing vigorous rootstocks to stimulate the vigor and yield of existing commercial varieties of grapes. The response when such varieties are grafted onto these hardy stocks is significant. For example, Concord and Moore's Early doubled their yield, Campbell's Early increased its yield nearly five times and one of the Missouri rootstocks, No. 3309, has proven of outstanding merit at the Geneva, N.Y., station.

Seeking methods of expanding production other than turning to newer varieties or using better rootstocks, the Missouri horticultural specialist has demonstrated that improved trellising and pruning are very positive aids. Having observed that Concord and Catawba grapes grown on a seven-foot-

high arbor bore far larger crops than on the conventional two-wire vineyard trellis, he improvised a vineyard trellis that would simulate an arbor.

Thus he put a three and one-half foot cross-arm on vineyard trellis posts and strung wires at each end to spread the fruiting canes so as to take advantage of the sunlight. The result was that a single vine of Muench, a normally highly productive black grape, produced 210 pounds of fruit on the vineyard arbor. That would amount to about 100,000 pounds to the acre.

Next fall when Ozark-grown Catawba grapes are ripe, they will be brought



Paul H. Shepard

to the Mountain Grove station, pressed, and the juice shipped under refrigeration to California to compete with home-grown California wine grapes.

Here, in brief, is the Catawba story. The Missouri Horticultural Society decided several years ago to start a wine grape project in an area adjacent to the Mountain Grove station. A financial grant for the project was secured from the Sears & Roebuck Agricultural Foundation. Naturally, Director Shepard was asked to select the best varieties. He suggested that Catawba would respond ideally to the long summers and dry falls.

The Catawba juice was pressed at the experiment station and shipped to the American Wine Company at St. Louis where it made an excellent wine that brought premium prices. During the past winter, however, the company moved to California. But it still wants the Ozark Catawba juice and has asked Mr. Shepard to send it on to the new plant.

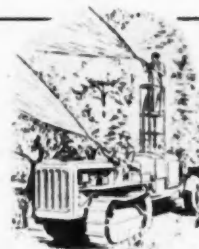
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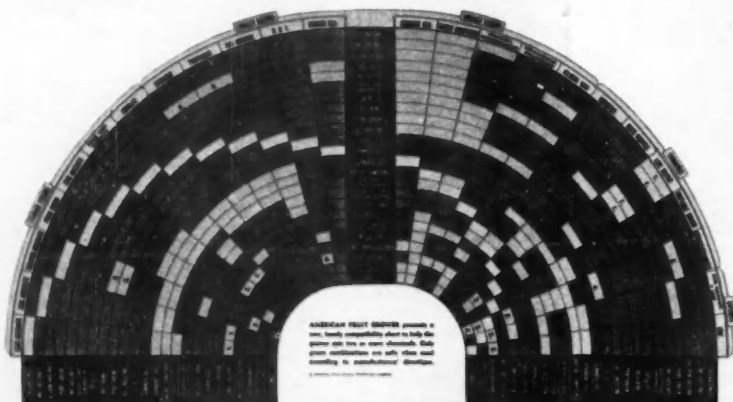
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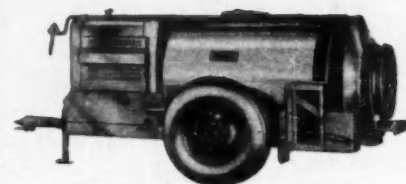
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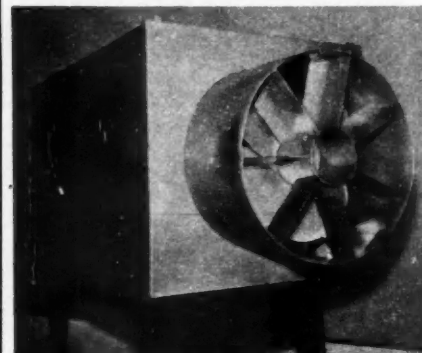


The new Hardie Hurricane air blast sprayer, equipped with two multiblades and 26-inch axial fans delivering 45,000 cubic feet of air per minute at velocities up to 135 miles per hour, is the latest thing in pest control. The machine is the result of over five years of testing and can be used for application of dilute or semi-dilute sprays. The Hurricane gives complete coverage to the highest trees on both sides of the orchard rows. The new Hardie is a one-man sprayer—all controls are operated easily from the tractor seat. Powered by a 140 h.p. Ford Industrial engine which can easily be dismantled for running your irrigation pump and other jobs, the sprayer is equipped with an all-steel 500 gallon tank. Write Dick Richardson, Hardie Manufacturing Co., Hudson, Mich.

You and Caterpillar

Growers are always looking for ways to produce better fruit at lower cost. Recently we read a new Caterpillar booklet which may be the answer to your problems. The new four-colored booklet explains how the grower can save time, money, and fuel with Cat-type tractors. We urge you to write Robert Culshaw, Caterpillar Tractor Co., Peoria 8, Ill., for your free copy.

Kleen-Air



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New Low Cost

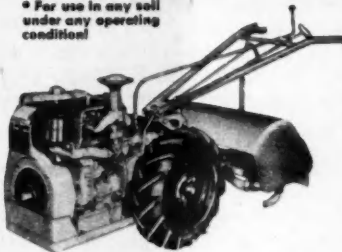


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YOU may obtain free copies of the 36-page booklet with 22 illustrations called, "You Can't Argue with Weeds," from Chipman Chemical Company. In handy pocket form, the booklet tells about chemical weed killers and which ones to use for which weeds. Write George W. Case, Chipman Chemical Company, Inc., Bound Brook, N. J.

For answers to 28 questions regarding sprinkler irrigation as well as up-to-date information on portable sprinkler irrigation write for the 24-page booklet, "What You Should Know About Portable Sprinkler Irrigation." It may be obtained from David C. Dickey, Shur-Rane Dept., John Bean Division, Food Machinery and Chemical Corporation, San Jose, Calif.

A new electronic deer repellent is called "Deer Fly." According to the manufacturer, "Deer Fly" will afford protection from deer damage to garden crops, small fruits, and nursery plantings of approximately three acres. It emits at irregular intervals short bursts of sound which tests have proven are particularly unpleasant to deer. Write Wildlife Associates, Inc., Box 265, Pittsfield, N. H.

In order to correctly plan your sprinkler irrigation system, use the check sheet and diagram made available by R. M. Wade & Co. Called "Farm Facts," the grower will find these simple tabulated guides which enable him to list all the essential facts about his farm likely to affect the operating efficiency of his contemplated sprinkler irrigation system. Write Robert M. Morgan, Head, Irrigation Div., R. M. Wade & Co., Portland 9, Ore.

"Keep America Growing . . . Quality Fruit" is the name of the 16 mm. sound motion picture available to fruit groups from the California Spray-Chemical Corporation. The picture is a collection of grower reports and experiment station and commercial field test reports on the use of Orthocide. The picture took a year to make and was filmed in the major fruit growing areas throughout the country. For copies to show to local or state fruit meetings, write L. F. Czufin, California Spray-Chemical Corporation, Richmond, Calif.

A new booklet entitled, "Steel Buildings for Practical Farmers," is handsomely illustrated and contains information on steel buildings of all sizes and shapes for the farm. Write Frank J. Reynolds, Manager, Agricultural Extension Section, United States Steel Corporation, 525 William Penn Place, Pittsburgh 30, Pa.

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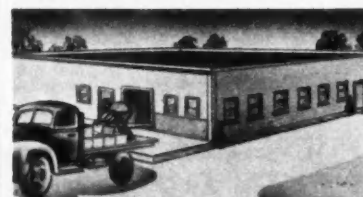
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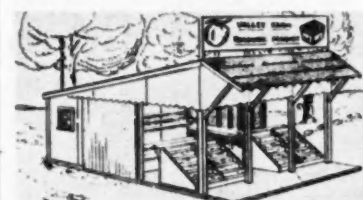
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ENTERPRISING LAD FROM LOUISIANA

By ANNABEL ATKINSON PANKEY

WHEN it's peach festival time in Ruston, La., if you don't find 14-year-old Mickey Sumrall right in the middle of things, you can be pretty certain that he's out of the state, at home sick, or that some other "calamity" has befallen him. Michael Hogue (his correct first name), already well-known among local producers as a very enterprising producer and marketer of the area's principal fruit crop, is an enthusiastic supporter of the annual state festival and keenly interested in the various competitions.

An active 4-H clubber, Mickey, who is the son of Mr. and Mrs. W. H. Sumrall, prominent peach growers of Ruston, has been helping on his family's farm since the age of six when he began driving his father's tractor. At eight, he assisted in the peach shed where the fruit is processed for the local market and out-of-state shipping. And ever since the first peach festival in 1951 he has been competing in one or more of the contests. Last June Mickey triumphantly bore home the Reserve Championship Ribbon of the state celebration for his fine Southlands.

The 160-acre Sumrall orchard with its 16,000 peach trees is located just outside the Ruston city limits on

national highway 80. So far the family has confined itself to raising four varieties—Dixie Gem, Southland, Golden Jubilee, and Elberta.

Choice selections of peaches, displayed to catch the eyes of passing motorists, are sold from an attractive revolving "merry-go-round" type roadside stand by the highway which is within walking distance of the pretty native-rock Sumrall residence. Designed by Mr. Sumrall, the stand is 20 feet across and painted a gay red and white. Since it is almost always on the move, the peaches are protected from excessive handling.

Mickey enjoys riding the "Merry-go-round" and selling its cargo when he can be spared from the orchard. THE END



Mickey Sumrall and his friend, Becky Irby, a candidate for "Princess Peach" in the 1953 festival, enjoy the fruits of Mickey's labor. "Merry-go-round" roadside stand was designed by Mickey's father.

MAY, 1954



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From where I sit ... by Joe Marsh

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Cob favors dry flies. Whitey pooh-poohs anything but wet flies. Cob swears by a Fan-Wing Royal Coachman; Whitey won't hear of anything but a Silver Doctor. And so it goes—they can't even get together on steel rods versus bamboo rods.

But on Saturday, each got back from Fox Creek with a catch that couldn't have differed by more

than a couple of ounces. Then over a friendly glass of beer, they allowed as how maybe they were both right . . . which is how so many arguments should end.

From where I sit, life would be a whole lot pleasanter if we all respected one another's opinions—whether about trout flies, or having a glass of beer, or voting. After all, a person has a right to follow his own line of thinking.

Joe Marsh

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AMERICAN FRUIT GROWER

The Orchard Home

THIS is the time of season when you will want to make good use of those fresh berries and cherries. Why not try the many mouth-watering recipes that we are featuring this month?

BLUEBERRY MUFFINS

- 2 cups all-purpose flour, sifted once before measuring
- 1 cup blueberries
- 2 teaspoons baking powder
- 4 tablespoons sugar
- $\frac{1}{2}$ teaspoon salt
- 1 egg
- 1 cup milk
- 2 tablespoons melted butter

Sprinkle $\frac{1}{4}$ cup flour (taken from amount called for in recipe) over blueberries. Sift together remaining flour, baking powder, sugar, and salt. Beat egg one minute, add milk and melted butter. Combine flour mixture and egg mixture and beat just long enough to hold together (less than one minute). Fold in blueberries. Bake in greased muffin tins, 12 to 15 minutes at 400° F. Makes 12 medium-sized muffins.—Mrs. C. W. Alley, Staunton, Va.

CHERRY ICE CREAM

- $\frac{3}{4}$ cup sweetened condensed milk
- 1 cup juice from tart cherries
- 1 teaspoon lemon juice
- $\frac{1}{4}$ teaspoon grated lemon rind
- $\frac{3}{4}$ cup cherries, chopped fine
- 1 cup cream, whipped

Into sweetened condensed milk stir cherry and lemon juice. Add grated rind. Whip cream, fold in cherries and cherry mixture. Turn into freezing trays and freeze, stirring several times, until firm. Serves 6.

RASPBERRY ROLL-UPS

- 2 cups sifted flour
- 1 tablespoon baking powder
- 2 tablespoons sugar
- $\frac{1}{2}$ teaspoon salt
- $\frac{1}{4}$ cup shortening
- $\frac{3}{4}$ cup milk
- 2 cups raspberries
- $\frac{1}{2}$ cup sugar

Sift dry ingredients, cut in shortening, and add milk to make a soft dough. Turn out onto floured board, knead lightly, and roll into a rectangle. Cover with berries and sugar, roll as for jelly roll, cut into slices, and arrange in greased baking pan. Bake in a hot oven (425° F.) 40 minutes. Serve warm with cream.—Mrs. M. E. Foust, Mifflinburg, Pa.

SWEET CHERRY ROLL

- $\frac{3}{4}$ teaspoon double-acting or $1\frac{1}{2}$ teaspoons single-acting baking powder
- $\frac{1}{4}$ teaspoon salt
- 4 eggs
- $\frac{3}{4}$ cup sugar
- 1 teaspoon vanilla
- $\frac{3}{4}$ cup flour
- 1 cup sweet cherries
- 1 cup sweetened whipped cream

Combine baking powder, salt, and eggs in bowl placed over smaller bowl of boiling water. Beat until light. Add sugar gradually, beating until thick and lemon-colored. Remove from bowl of hot water and add vanilla. Sift and measure flour and fold into mixture. Turn into sheet pan lined with waxed paper. Bake at 400° F. 12 to 13 minutes. When done turn out on cloth sprinkled with powdered sugar. Roll up and let cool. Unroll and spread with crushed

drained cherries sweetened if desired and combined with sweetened whipped cream. Roll up tightly. Slice 1 inch thick. Serves 10.

BLUEBERRY BATTER CAKE

- 2 cups blueberries
- Juice $\frac{1}{2}$ lemon
- $\frac{3}{4}$ cup sugar
- 3 tablespoons butter
- $\frac{1}{2}$ cup milk
- 1 cup sifted flour
- 1 teaspoon baking powder
- $\frac{1}{4}$ teaspoon salt
- 1 cup sugar
- 1 tablespoon cornstarch
- $\frac{1}{4}$ teaspoon salt
- 1 cup boiling water

Line a well-greased 8x8x2 pan with berries sprinkled with lemon juice. Cream sugar and butter together, add milk alternately with flour, baking powder, and salt which have been sifted together. Pour this batter evenly over blueberries. Combine sugar, cornstarch, and salt. Sprinkle over top of cake. Pour boiling water over all and bake in moderate oven, 375° F., for 1 hour. Makes 6 servings.—Mrs. B. C. Johnson, Sioux City 20, Iowa.

RED RASPBERRY SHERBET

- 1 pint red raspberries
- Juice 2 lemons
- Grated rind 1 lemon
- $1\frac{1}{2}$ cups sugar (about)
- 1 cup top milk
- 2 cups milk

Crush berries, then add lemon juice, rind, and sugar. Stir mixture until sugar is dissolved. Add top milk and milk and mix. Then freeze mixture in a hand freezer. Sherbet can also be made in freezer trays if, during freezing, sherbet is thoroughly beaten.

SWEET CHERRY TARTS

- 2 cups pitted whole sweet cherries
- $\frac{1}{4}$ cup water
- $\frac{3}{4}$ cup sugar
- 3 tablespoons flour
- 1 tablespoon butter or substitute
- $\frac{1}{4}$ teaspoon almond extract
- 6 baked tart shells

Bring cherries and water to boil in saucepan and simmer 10 minutes. Combine sugar and flour. Add a little of hot juice, stirring to make a paste. Add to cherries and cook over low heat until thick and smooth. Add butter and flavoring. Cool. Pour into cooled baked tart shells. Garnish with sweetened whipped cream if desired. Serves 6.

STRAWBERRY DELIGHT

- 1 quart stemmed and washed fresh strawberries
- $\frac{1}{2}$ cup sugar
- 1 pound marshmallows
- 1 pint heavy sweet cream

Mash strawberries in a saucepan. Add sugar and let come to a boil. Quarter marshmallows and add to strawberry-sugar mixture. Let stand until mixture is cold. Then stir well and fold in cream which has been whipped, reserving a small amount for topping. Pile chilled mixture in sherbet glasses. Set in refrigerator until serving time.—Frances Strnad, Munden, Kans.

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